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STUDIES IN
ACCOUNTING THOUGHT

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Preface

Today, the accounting world is at a crossroads. Serious challenges besiege it. For instance, should accounting continue to remain primarily an instrument of pursuing self-interest of different factors of production associated with a firm? Or, should it be an instrument for serving the social interest in a pluralistic system? Or, should accounting be neutral between the two polar sets of interests and seek, instead, to represent only the reality of the economic world? Or, should accounting take a radical ethical stance, spelling out in clear terms to one and all, the right and the wrong of our socio-politico-economic activities?

These and many other issues have been provoking the 'thinking' accountant, for the last few decades and the ensuing strands of thought feature prominently in accounting literature. Considerable deliberation, discussion and debate on such issues are also facilitated by way of seminars, publication of conference proceedings, papers, academic and professional journals and books. However, rarely are the fruits of these endeavours shared with graduate students and enthusiastic research scholars who, too, are legitimate members of the accounting community. After all, they are responsible for shaping the future course and role of accounting.

The teachers of our department felt the crying need for a publication aiming specifically at such an audience and formally proposed in a meeting of the Department of Special Assistance (DSA) Committee to bring out the present collection of readings. It was unanimously felt that this work could only be the outcome of a cooperative effort of a number of academics in the accounting discipline.

Accordingly, invitations for articles were extended to academicians all over India, to which there was a ready response. However, since the contributors to the volume did not have the opportunity of coming together to deliberate and select a topic of their interest in consonance with a common theme, it has been, indeed, very difficult to identify a central theme from among the collection of articles. Under these circumstances, an attempt has been made to group them into four sections according to the proximity of the ideas expressed by the authors. The first section is devoted to clarifying a few conceptual aspects of accounting, while the second section probes the efficacy or otherwise of some issues concerning financial reporting practices. The third section focuses on the social responsibility dimension of corporate financial accounting and reporting. The final section turns the spotlight on matters relating to ethical foundations of the accounting discipline.

In particular, the first section deliberates on such issues as how people associated with accounting activities influence these activities to serve their self-interests, how they are automatically restricted, why perceptions regarding accounting information differ, how the dynamic nature of business, i.e. rate of change in the rate of business income can be communicated through the accounting system, and how teaching, research and practice in accounting can be harmonised for making the discipline dynamic enough to adapt to the fast-changing economic scenario.

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Contradictions prevalent within accounting standards, the accountants' dilemma in presenting true and fair view of business, impact of globalisation on accounting techniques and reporting systems, and the problems associated with third-world accounting education and financial reporting systems are the issues raised in the second section.

The third section acknowledges that business activities affect not only contracting parties but also third parties — a fact that traditional corporate reporting overlooks. Reporting of corporate social responsibility and reporting of environmental degradation are two of the topics discussed here. An attempt is also made here to account for the contribution of human resources in profit-seeking organisations and to enquire into the possibility of accounting for human resources in not-for-profit entities.

Accounting, as such, deals with multi-person activities where there is ample scope for the application of personal value judgements to suitably serve the self-interests of accountants, to the detriment of the interests of intended users of accounting information. Such a conflict of interests can be mitigated by carefully drafted rules and codes of professional ethics and conduct; however, ethical dilemmas would still continue to confront accountants inspite of well-documented rules and procedures. The fourth section aims to analyse the nature of such ethical dilemmas, to seek out ways to resolve them and to search for ways to instil ethical awareness among accountants through accounting education. All this may go far towards restraining the conflict of self-interests but will surely not guarantee the eradication of the major driving forces underlying self-interest motives. The last article of this volume addresses this crucial problem and tries to work out possible solutions to this end. It beckons the accounting fraternity to transcend the limits of rational self-interest and to gradually, yet increasingly, be imbued with an intuitive wisdom inherent in human creativity. This, by far, is the foremost prerequisite for any (human) activity committed to the pursuit and promotion of 'social' welfare.

It must be mentioned that funds for publication of this volume which were initially to be obtained from the DSA programme were subsequently not available. Hence, we approached our Hon'ble Vice-Chancellor, Professor R. N. Basu and the then Hon'ble Pro-Vice Chancellor (Business Affairs & Finance) and present Pro-Vice Chancellor (Academic Affairs), Professor P. N. Roy to kindly provide us with financial assistance for the publication, which was immediately granted. We express our heartful gratitude to them for their advice, assistance and valuable guidance without which this work could not be brought out.

A sincere acknowledgement is due to the contributors, especially those outside Calcutta University, who promptly responded to our request by sending their valuable articles. I thankfully acknowledge my debt to my colleagues in the department, particularly, Professors R. G. Mukherjee, S.

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Sengupta, B. Banerjee, A. K. Basu, P. R. Choudhuri, and S. Banerjea, for their continuous support, encouragement and advice during the process of bringing out the book. I express my heartful gratitude to my revered teachers, Professors G. D. Roy and A. K. Dattagupta for their blessings and advice in this endeavour. I must offer a special word of thanks to my colleague Ms. Kanika Mookerjee and my beloved student Sri Arup Choudhuri for their ungrudging and untiring assistance in proof-reading and a number of other strenuous tasks that precede publication of such a volume. They have endeavoured to make the work as error-free as possible. For errors that might still be present, I hold myself responsible. I also regret the unavoidable delay in the publication of this volume which was due sometime earlier. Lastly, I extend my thanks to the people at the Calcutta University Press, particularly the Superintendent, Sri Pradip Kumar Ghosh, for their cooperation in bringing out this publication.

Department of Commerce
University of Calcutta
December, 1995

G. Sinha
Editor

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Section I

Conceptual Issues

Five essays presented in this section are conceptual in nature and relate to some basic thoughts in accounting.

Arun Kumar Basu in ***Positive Accounting Theory : An Overview*** *examines the contributions of Positive Acccounting Theory (PAT), originally postulated by the Chicago School of Economics, towards the development of accounting thought. PAT seeks to explain why accounting is what it is, and why accountants do what they do. Here, a firm is seen as a 'nexus of contracts' between self-interested parties where people, both individually and in groups, act to maximize their own utilities. Accounting procedures are adopted likewise, to justify their self-interest maximizing actions. Though PAT does contribute significantly to the understanding of accounting practices, it is certainly not a substitute for other theories. The author identifies several areas where further investigation is necessary.*

In the present-day complex business world, where a firm is viewed as a 'nexus of contracts', each contract involves two parties— the principal and the agent. The 'nexus' or the team is the principal and all others are agents. G. Sinha in ***Agency Theory****, points out that in such contractual relationships, some decision making authority is delegated to the agents who seek self-interest. Consequently, in multi-person activities based on cooperative behaviour, some participants might try to grab the benefits generated from cooperative efforts, which inevitably leads to inter-personal conflict. Agency theory explains why, in such situations, economic agents of the organisation behave as they do, why organisations take the forms they do, and why accounting practices are the way they are.*

In spite of its limitations, the theory serves to guide accounting policy makers in adopting decision alternatives that aim to mitigate conflicts among agents.

Real-world business situations provide enough evidence to show that managers in organisations, motivated by their self-interest seeking inclinations, very often select accounting policy options and procedures to serve their personal ends. Conversely, accounting information also influences individual behaviour — a fact that has been extensively researched by behavioural accounting researchers. M. Ranganathan and R. Madhumathi in ***Behavioural Aspects of Accounting****, summarise the major works and findings in this direction after spelling out that the primary concern of behavioural accounting is to identify the reason (s) for different perceptions of users of specific accounting information. It is strongly felt that such research would help in establishing the hidden pattern of decision makers and the way in which accounting information is perceived by experts such as investors, auditors and financial analysts.*

In order to understand better the dynamism attained by business, it is necessary to know the rate of change in the rate of earning of business in addition to the income relating to the accounting year. In this connection

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the idea of triple entry book-keeping introduced by Yuji Ijiri appropriately incorporates tri-dimensional measures of economic events. Ananda Mohan Pal in ***Concept of Triple-Entry Book-keeping*** *elucidates Ijiri's concept by stressing the dichotomy of wealth and capital in place of the notions of assets and equities that form the basis of double entry book-keeping. In this framework, wealth accounts represent financial status of an enterprise and are considered equivalent to stock accounts, whereas, capital accounts, which summarise changes in wealth, may be considered to be flow accounts. The double entry system provides us with two dimensions of economic events—wealth and income — where changes in the first are explained by the second. Here, a third dimension, namely, action, is added to explain changes in the second dimension. As a result, we have as many wealth-income statements as the number of action accounts.*

Third dimensional information is relevant to today's managers and investors and can be fruitfully provided in the near future by availing of the advancements in information technology applied to computer-based accounting systems.

Dwelling on the theme of dynamism in business environments, A Mallik and S. Ghosh in ***Accounting Dynamism : The Need for Integration between Research, Teaching and Practice*** *emphasise the need for accounting systems to respond to changes in the economic world. Harmony among accounting practice, research and teaching is the key to initiating such change. Adaptability is rendered easier when problems in practice are observed, analysed and their underlying causes are identified. Solutions arising from such a process will definitely equip practitioners to face the uncertainties of real-world problems. This process of enquiry and seeking solutions is the function of accounting research. Accounting educators, as part of their teaching assignments should familiarize students (i.e. would-be practitioners) with the fruits of accounting research work, so that they may subsequently be applied to improving accounting practice. This would generate a self-reinforcing triangle of accounting research, education and practice in the interest of injecting much needed dynamism into the discipline.*

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Positive Accounting Theory : An Overview

Arun Kumar Basu *

Introduction

Since the late 1970s a group of accounting academicians, who owe much of their intellectual allegiance to the Chicago School of Economics, have been endeavouring to develop an economics-based accounting theory that should be able to explain and predict the choice of accounting procedures by accounting practitioners.This accounting theory has been branded as "positive accounting theory" (henceforth to be referred to in this article as PAT) in order to distinguish it from those conventional accounting theories, the purpose of which is to offer prescriptions concerning accounting practice.The conventional accounting theories that are concerned with prescribing how accountants should account for the financial events and phenomena of firms have appeared to positive accounting theorists as "unscientific" because they are infested with value judgements of those who have propounded them. PAT is based on science's concept of theory and so it is considered by its proponents as a "scientific" theory.

The need to adopt a positive approach to the study of acounting was first recognised by M.C. Jensen of the University of Rochester.In a lecture delivered by him in 1976, he (Jensen, 1976, p.13) called for the development of a positive accounting theory which "will explain why accounting is what it is, why accountants do what they do, and what effects these phenomena have on people and resource utilisation".The idea put forward by Jensen soon captured the imagination of two of his colleagues, R.L. Watts and J.L. Zimmerman, who published in 1978 an article in the Accounting Review under the title of "Towards a Positive Theory of Determination of Accounting Standards" (Watts & Zimmerman, 1978) which created a great deal of sensation among academic accounting researchers at that time.Many became interested to explore the possibility of conducting further studies using the newly developed research approach. During the fifteen years that have elapsed between the time of publication of Watt & Zimmerman's sensation-creating article and the undertaking of the present exercise, many positive studies in accounting practices have taken place and this has helped to generate a substantial body of positive accounting literature[1] which is not only fascinating but also novel and thought-provoking.The literature has contributed a great deal to our understanding of the nature of functioning of the accounting institutions.It has particularly been useful in recognising the importance of contracting costs to explain accounting.It is claimed by Watts & Zimmerman (1990), who happen to be the two principal architects of the emerging school of thought, called

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1 Readers interested to know the details of the types of studies undertaken by positive accounting researchers with a view to investigating accounting procedures choice problems are advised to see an article published by Williams (1989).

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the Rochester School of Accounting, that positive accounting researchers have been able to discover many previously unknown empirical regularities in the matter of choice of accounting procedures and that they have also been able to provide explanations for them.According to these writers, there exists a discernible relationship between the choice of accounting procedures by firms and other firm-related variables such as size and leverage.Efforts are now being made by positive accounting researchers to explore the possibility of extending the boundaries of their positive studies of accounting practices.

PAT has also been criticised from several quarters.Some have criticised PAT by saying that it confuses accountants with accounting.According to these people, PAT is a theory not of accounting but of accountants.Some others have criticised the theory on the ground that the methodology underlying it is defective.Attention has been drawn by many to the various logical flaws underlying the explanations that positive accounting theorists have advanced in order to justify their cases.There are still some others (e.g., Sterling, 1990) who have tried to demonstrate that the achievements of PAT are nil and they will continue to be so in the future.

The purpose of this paper is to render a brief account of the nature, aim, scope, structure and foundations of PAT. Efforts will also be made to see why and how the theory has been criticised from different quarters.The paper will, at first, focus attention on the philosophical doctrine of "positivism" and an extended version of this doctrine called "logical positivism".The reason for doing this is that a good number of those from whom positive theorists have sought intellectual support for their theory are either logical positivists or are oriented to logical positivism.

The Doctrine of Positivism

The doctrine of positivism is a philosophical doctrine which asserts that all genuine knowledge is based on sense experience and that advancement of knowledge can take place only through observation and experiment.It rejects all sorts of personal opinion and theoretical speculation as a means of securing knowledge.According to positivists, the task of philosophy should be to understand the nature and significance of the methods by which the sciences are advanced.The doctrine was founded in the nineteenth century by the French philosopher Comte, who advanced the viewpoint that the main function of theories is to coordinate the observed facts rather than to explain in terms of causes.He did not entertain the idea of discovering extra-mundane causes of the natural world and it was his firm belief that a time will come when human society itself will also be studied by the positive methods.

Comte's doctrine was further refined and extended in the first quarter of this century by a group of philosophers associated with the activity of the *Vienna Circle*.These philosophers sought to maintain the position that all sorts of statements or word arrangements that do not express verifiable matters or that do not express the truth of mathematics or logic are simply senseless and do not deserve any attention.They can be meaningful only when they are

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verifiable at least in principle or are matters of pure logic.By this criterion, all metaphysical statements will appear to be senseless statements.Theology is also to be dismissed on this verifiability ground.It is, in fact, the verifiability criterion which has come to be established as the real essence of logical positivism.According to logical positivists, metaphysical problems remain unresolved not because they are difficult to solve but because they do not carry any sense.

Although positivism is still being pursued in some quarters, its appeal seems to have been lost to a very significant extent.Modern philosophers are not prepared to take the doctrine seriously.The main problem of positivism stems from the very assumption on which it is founded.This assumption implies that there are facts that can be separated from one another and such facts can be expressed and correlated by means of observation and experiment.

The Nature and Scope of PAT

PAT is concerned with explaining and predicting accounting practice. All scientific theories, especially those belonging to the natural sciences, are basically concerned with performing two kinds of functions : providing explanations for observed phenomena and offering predictions concerning unobserved phenomena.The phenomena that PAT seeks to explain and predict are the phenomena that occur in the sphere of accounting practice.The theory has no prescriptive implications for accounting practice.According to accounting positivists, the term "accounting practice" is a very broad term and auditing practice is also included in it.Truly speaking, PAT is a theory of accounting procedure choice.It seeks to explain why accounting procedures vary across firms and industries.To be more specific, PAT explains why some firms choose a particular accounting procedure in order to account for an event or phenomenon and why other firms choose a different accounting procedure in order to account for the same event or phenomenon.According to accounting positivists, there should be a theory that will explain why, for example, some firms use the straight-line method and others use the reducing balance method in computing depreciation of plant and equipment and other tangible fixed assets.The scope of making a choice is available not only in the sphere of computation of depreciation but also in various other spheres of accounting measurement. As a matter of fact, the generally accepted accounting principles (GAAP) are characterised by such a high degree of flexibility that accounting practitioners get enough scope to exercise their discretion over the selection of methods or procedures to be used in the preparation and presentation of financial statements.There are various categories of people that are associated with the choice of accounting procedures, but positive accounting theorists have focused their attention mainly on managers.This is why PAT is often referred to as the theory of choice of accounting procedures by managers.

PAT has also been extended to auditing practice.Accounting and auditing are very intimately associated.Auditors are required to confirm the accounting numbers that are disclosed in financial statements.Really speaking, auditing

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is one kind of monitoring mechanism whose objective is to ensure that accounting numbers disclosed in financial statements have been computed by using accepted accounting procedures.Positive accounting researchers are of the opinion that if the contracting process (to be discussed later) can explain the choice of accounting procedures, it should also be able to provide explanations for auditing practice.Some empirical studies have already been conducted in the field of auditing practice and the results appear to be quite encouraging.

In addition to providing explanations for observed accounting practice PAT has also another important function to perform.This is the function of generation of predictions.It has to generate predictions for unobserved phenomena relating to accounting practice.These unobserved phenomena may be future phenomena as well as past phenomena.By past phenomena are meant those phenomena in respect of which no systematic evidence has been collected.Watts & Zimmerman (1986, p.2) have explained this point thus :

> An accounting theory can provide hypothesis about the attribute of firms that use LIFO versus the attributes of firms using FIFO.Such predictions can be tested by using historical data on the attributes of firms using the two methods.

One of the important criteria that are generally followed in the natural sciences to judge the quality of a theory is its predictive ability.Since PAT is modelled on the theories of the natural sciences, positive accounting researchers have considered it necessary to lay a great deal of emphasis on testing the predicting power of their theory.

The understanding of PAT may be greatly facilitated if it can be clearly distinguished from the other kinds of theories currently prevailing in the field of accounting.An endeavour will at first be made here to see how PAT differs from the normative theories.It has been stated earlier that PAT is basically concerned with why accounting practice is what it is.That is, why the accounting procedures used to calculate accounting numbers are what they are.The theory does not make any attempt to judge whether the precedures used are good or bad.The role of the normative theories is quite different.They are concerned with prescribing procedures which will be able to improve the quality of financial reporting.Normative theories offer prescriptions as to how firms should measure their assets and liabilities and how they should compute their periodical profits.The first step in the construction of a normative theory is the determination of the objectives of financial statements.After establishing the objectives, efforts are then made to define certain key terms and specify some basic assumptions.Finally, a logical process of deduction is followed in order to arrive at a conclusion.The main problem of normative theories lies with the specification of the objectives of financial statements.Since the objectives differ among theorists, prescriptive implications of different theories are likely to be different.This is one important reason why no single normative theory is universally accepted.

Watts and Zimmerman (1979) have offered a new perspective for

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evaluation of normative theories. According to them, the predominant function of normative theories is to supply excuses which satisfy the demand created by the political process. The regulatory process operating in a country creates a demand for a variety of accounting theories because each party affected by an accounting standard formulated by the regulatory agency needs a theory to justify its own position in the lobbying process. But who will supply such theories? Obviously, the supply of accounting theories comes from accounting researchers. They are at times bribed by research grants into providing theories which can be used as excuses for lobbying purposes. In many cases researchers are not at all aware of the fact that they are actually supplying excuses. It has been observed by Watts & Zimmerman (1986, p.50) that the supply of normative theories which are capable of being used as excuses for lobbying purposes may come from accounting researchers via some subtle incentive processes. According to them :

> Researchers have incentives to write on controversial topics. If a researcher writes a prescriptive paper on the topic of a proposed standard or regulation it is likely to be used by one of the parties affected by the proposed standard or regulation.

There can be no denying the fact that prescriptive theories are sometimes used by parties in justifying their positions in the political lobbying, but it will possibly be incorrect to assume that the researchers who are constructing theories that have prescriptive implications are all being influenced by the demand for excuses. There are many researchers in the normative deductive camp[2] who have always been guided by some sort of a missionary zeal to promote measures for improving the quality of the measures contained in financial statements. In this context it has been pointed out by Mattessich (1984, p.78) that the accusation that accounting scholars are systematically tricked into providing excuses for lobbying purposes is contrary to experience.

There is a great deal of difference between PAT and the theories that have been developed by accounting inductivists like Hatfield (1927), Gilman (1939), Littleton (1953), and Ijiri (1975). The essence of the inductive approach to theory construction lies in making observations and then drawing conclusions from those observations. This process is actually the process of going from the specific to the general. Inductivists at first make an attempt to analyse the phenomena that are going on in the field of accounting practice and then try to discover the rules and principles that are underlying those phenomena. Their ultimate objective is to create logical order out of the observable disorders and differences. This approach to theory construction also involves empiricism, but it is not the same kind of empiricism employed by the positive accounting researchers belonging to the Rochester School. The empiricism that forms the basis of construction of inductive accounting theories is, truly speaking, a kind of naive empiricism. There is virtually no hypothesis testing in inductive theories

2. A summary of the contributions of accounting theorists belonging to the Normative Deductive School of Accounting is available in *Statement on Accounting Theory and Theory Acceptance* (AAA, 1977).

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and the tools and techniques that are employed by researchers are of very elementary categories.Another discordant feature observed in the works of a good number of inductive theorists is that arguments of a normative variety are often allowed to be interposed without any clear specification of the premises from which they have emerged.

PAT has also to be distinguished from the other kinds of positivistic empirical theories that have been developed in recent years.The most prominent among these is the theory which is concerned with explaining the role of accounting information in the determination of security prices.It was Ball and Brown (1968) who first introduced this information-oriented approach to research and theory building in accounting.Initially, there was some sort of a hesitation but very soon this mode of accounting research came to be established as the dominant mode in the Anglo-American countries, particularly in the USA.Under this approach, accounting is viewed from an information perspective and it is assumed that accounting numbers convey information to the capital markets for valuation purposes.Various studies have been undertaken with a view to investigating the nature of relationships that exist between accounting disclosures and security prices.Attention has particularly been focused on an understanding of how the capital markets procure, interpret and absorb accounting information.A sizeable body of evidence has been gathered in support of the hypothesis that the capital markets are efficient processors of accounting information.This market efficiency implies that the capital markets are able to make a clear distinction between the changes in accounting numbers that arise from economic changes and those that arise from changes in accounting procedures.Under this framework, a firm cannot change its market value simply by changing the accounting procedures.The information value-oriented accounting theory does not provide any basis for the development of hypotheses concerning choice of accounting procedures.Accounting researchers who are eager to develop a positive theory of accounting procedure choice have, therefore, to go elsewhere in search of a foundation upon which to erect the superstructure of their theory.

The Foundations of PAT

The formulation of hypotheses concerning choice of accounting procedures needs certain other theories that are in a position to explain how accounting functions.The two important theories on which positive accounting theorists appear to have laid a great deal of importance in the matter of formulation of their hypotheses are the theory of the contracting process and the theory of the political process.The nature and significance of these two theories will be discussed in this section of the article.

The Theory of the Contracting Process

This theory is frequently referred to in the literature as the "property right" theory of the firm.In this theory it is assumed that the firm is a nexus of contracts between self-interested individuals.The contracts that define the firm include both formal contracts and informal contracts. Another important

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assumption underlying the theory is that the firm has non-zero contracting and information costs.According to Watts & Zimmerman (1986, p.180), the firm's contracting costs are as important to its profitability and survival as its production costs.The term "contracting costs" is a very broad term and it encompasses a wide variety of costs, such as agency costs, informaton costs, renegotiation costs and bankruptcy costs.The contracting costs are affected by accounting procedures and, as such, the variation in the magnitudes of these costs across firms and industries provides researchers with an opportunity to explain variation in accounting practices.

The contracts that define the firm needs monitoring and enforcement.Accounting and auditing are demanded in order to satisfy the monitoring and enforcement functions.The hypothesis that considers accounting and auditing as a device for monitoring the contracts that define the firm is, however, not consistent with the hypothesis which maintains that accounting reports are needed in order to satisfy the demand for supplying information about the ability of the firm to generate cash flows in the future.But there is a great degree of similarity between the contracting concept of accounting and the stewardship concept of accounting.Under the stewardship concept, it is assumed that financial statements are a device by means of which managers render an account of how honestly and efficiently they have utilised the resources entrusted to them.Positive accounting researchers have chosen the contracting hypothesis owing to the fact that it provides them with an opportunity to establish a link between accounting procedures and the firm's cash flows.

When accounting numbers are used in the contracts that define the firm, some restrictions are likely to be imposed on managers in the matter of computation of those numbers.The restrictions that are imposed on managers are aimed at preventing them from taking actions that may lead to a reduction in the firm value.But despite there being restrictions, managers still get enough opportunity to exercise discretion over the choice of accounting procedures.The procedures that are actually chosen by managers are, however, predicted to vary across firms and industries because the costs and benefits of restrictions vary from situation to situation.

Although there are several categories of contracts that use accounting numbers, positive accounting researchers have concentrated upon two categories of contracts in generating hypotheses about managers' choice of accounting procedures.These contracts are management compensation contracts and debt contracts. The two hypotheses that have been tested quite frequently by positive accounting researchers are the bonus plans hypothesis and the debt/equity hypothesis.Under the bonus plan hypothesis, it is predicted that if managers have bonus plans tied to accounting profits then they will try to choose those accounting procedures from the available set which will enhance their rewards.This will be so even if reward enhancements are achieved at the expense of other contracting parties.

The debt/equity hypothesis predicts that if the debt/equity ratio is very

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high then managers will prefer to select those accounting procedures that are capable of increasing profits and asset values.Debt contracts often contain restrictive debt covenants which seek to minimise the potential conflicts of interests between the firm's debtholders and shareholders.The restrictions that debt covenants seek to impose on managers can be many and varied.Sometimes provisions are included in debt contracts restricting the ability of managers to pay dividends and to issue further debts if certain minimum accounting numbers are not attained.For example, there are debt contracts which require firms to maintain a particular interest coverage ratio and to maintain working capital above a certain level.Debt covenants are likely to be quite costly to the firm.According to Begley (1990, p.125), a restrictive covenant can be costly to the firm "either because of the actions it prohibits or because of the cost of repaying or renegotiating the debt issue to remove the covenant".When managers find themselves in the position of having to be constrained by restrictive debt covenants, they are likely to be induced to choose those accounting procedures that will reduce the possibility of the covenants becoming binding on them.

The Theory of the Political Process

The theory of the political process provides another very useful basis for developing hypotheses concerning choice of accounting procedures by managers. The operation of the political process can be judged in terms of the economic theory of regulation which maintains that information, lobbying and coalition costs are all positive, and that politicians, like others, always act to maximise their own utility.In the political process there is always a competition for wealth transfer.It is through rules and regulations that wealth is transferred from individuals via governmental fiscal and other mechanisms.Individuals are often required to incur substantial costs in getting informed as to how they are going to be affected by proposed governmental actions.Situations sometimes arise which induce individuals to coalesce into groups in order to exert pressures on governmental agencies either to generate a favourable legislation or to oppose an existing or a proposed legislation.

Accounting numbers are often used in the political process to justify actions aimed at imposing costly regulations on firms. For example, large profits reported in published financial statements may induce legislators to believe that monopoly power of a certain kind has developed.Consequently, they may be inclined to impose some additional tax or introduce a new lagislation restricting the activity of these firms.This provides an incentive for managers of big firms to choose accounting procedures which will create a depressing effect on reported net profits.

It is clear from the above analysis that the incentives provided by the political process for choosing accounting procedures are quite opposing to those provided by the contracting process.When conflicting situations arise, managers have to trade-off political costs against contracting costs.

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Evidence on the Theory

The strength of a theory is normally judged by the ability of the theory to explain and predict the phenomena in a particular domain.Positive accounting researchers have conducted different types of tests in order to evaluate the explanatory and predictive powers of their theory.These tests can broadly be divided into two categories : stock price tests and accounting choice tests.The stock price tests of the theory have sought to explain changes in stock prices associated with announcements of changes in accounting procedures.Both mandatory and voluntary accounting procedure changes have been taken into consideration by researchers in studying the price effects.It has been observed from the results produced by the studies that stock prices react significantly to the announcements of changes in accounting procedures.But such reactions have remained confined only to mandatory accounting changes.Voluntary accounting changes have not generated stock price reactions of any measurable magnitude.Stock price tests are not very powerful tests of the theory and this fact has also been admitted by Watts and Zimmerman (1990).

Accounting choice studies are considered to be very useful in explaining the accounting procedures that are adopted by firms in preparing and presenting their financial statements.The three hypotheses that have frequently been tested by positive acounting researchers are the bonus plans hypothesis, the debt/equity hypothesis and the size hypothesis.The first two hypotheses, as mentioned earlier, have been derived from the theory of the contracting process, while the third one owes its origin to the theory of the political process.It has been assumed by researchers that managers behave opportunistically when they choose procedures to be used in the preparation and presentation of financial statements.In testing hypotheses concerning the choice of accounting procedures by managers, most researchers have concentrated their attention on a single accounting procedure.Since managers seek to achieve their desired objectives through the development of some optimum portfolios of accounting procedures, concentrating only on a single procedure does not seem to be a justifiable proposition.The power of the test is bound to be reduced to a significant extent when attention is focused on a single procedure instead of a portfolio of procedures.Some positive accounting reaearchers (e.g., Healy, 1985; DeAngelo, 1986) have tried to use accounting accruals (which are designed to render an account of the difference between net profits and cash flows) as the basis of test, but this attempt has not been successful.

The evidence that positive accounting researchers have been able to gather is found to be consistent with the debt/equity hypothesis which maintains that the higher the debt/equity ratio of the firm, the more likely it is to choose those accounting procedures that are capable of increasing net profits and enhancing asset values.It is maintained by Watts and Zimmerman (1990, p.139) that "the association between leverage and accounting method choice is an empirical regularity unknown prior to the positive accounting studies".

The results of accounting choice studies appear to be somewhat mixed in the case of the bonus plans hypotheses, which holds that managers of firms

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with profits-based bonus schemes choose acounting procedures which enhance profits of the current year.In some cases (e.g., Dhaliwal, Salamon and Smith, 1982) the results are found to be generally consistent with the hypothesis, while in other cases (e.g., Hagerman and Zmijewski, 1979) some anomalous results are obtained.The bonus plans hypothesis is based on a number of simplified assumptions whose appropriateness can easily be questioned.Bonus plans may not always provide managers with incentives for selecting profit-inflating procedures; there can, in fact, be situations where managers find incentives in adopting accounting procedures that reduce current profits.

The evidence that positive accounting researchers have been able to gather from their studies concerning choice of accounting procedures by managers tends to support the hypothesis which predicts that the larger the size of the firm, the more likely it is to choose the accounting procedures that will reduce reported net profits.Size is, in fact, a variable which is used by researchers to proxy for political costs.In this connection it has, however, been pointed out by Watts and Zimmerman (1986, p.267) that the size hypothesis results could be industry-specific.

Doubts have been expressed from many quarters to the effect that the empirical regularities that have been discovered by positive accounting researchers may not be due only to the factors hypothesised by them in their studies.According to these people, there are various other factors that could equally be responsible for the observed empirical regularities.The possibility that this can be so has not been ruled out by positive accounting researchers.It has been admitted by them that bonus plans, leverage (debt/equity), and firm size can predict "only a very small amount of the cross-sectional variation in accounting procedures" (Watts & Zimmerman, 1986, p.267).They appear to be very much aware of the need to make their systems of hypothesis testing more rigorous and more sophisticated.

How PAT Can be Useful

PAT can be useful in several different ways.It can be very much useful in providing a basis for understanding the reasons why accounting practices vary so widely across firms and industries.Such an understanding is likely to be very helpful in dispelling many of the doubts and confusions which exist at the present time regarding the form and content of published financial statements.If the factors which motivate managers to choose profit-inflating accounting procedures are clearly known, it may then be easier to interpret the various accruals and deferrals currently being used by firms in the preparation and presentation of their financial statements.There are several accounting practices whose underlying logic seems not to be very clear.If these practices are evaluated and judged using the framework of PAT, it may then be possible to understand their real significance.PAT is also capable of providing an understanding of why there arises a need to get financial statements audited by an independent auditor and why firms behave as they do in the matter of selection of audit firms.

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The users of published financial statements are expected to derive significant benefits from PAT.If they are aware of the effects of the political and contracting processes on accounting procedures, it may then become easier for them to judge the financial status and performance of the firm by making appropriate adjustments to the accounting numbers contained in financial statements.The users of published financial statements are often required to assess the future cash generating ability of the firm.This is a very complicated task.But the problem is likely to be somewhat easier if the users are thoroughly conversant with the reasons for variation in accounting practices across firms and industries.

PAT can be very useful to the agencies responsible for setting accounting standards.The framework provided by PAT can be used by these bodies in assessing the roles, interactions and possible reactions from the various parties that are likely to be affected by a proposed accounting standard.It is true that accounting standards are difficult to formulate, but it is far more difficult to implement those standards.Accounting standards setting bodies have to encounter serious problems frequently in implementing especially those accounting standards that have economic consequences.It may even be necessary for them at times to abandon accounting standards after they have been promulgated because of stiff resistance from one or more powerful blocs.The Institute of Chartered Accountants of England and Wales (ICAEW) has a very bitter experience in this connection.A system of preparation of financial statements based on current costs was developed by the agency responsible for formulating financial accounting and reporting standards in the UK after giving careful consideration to various pertinent issues, but this standard had ultimately to be abandoned by the ICAEW in view of serious resistance from a section of its members.The entire matter was thoroughly investigated by the Accounting Standards Committee (ASC, 1981) which eventually came to the conclusion that :

> Law-making, including the setting of mandatory accounting requirements, is essentially a political activity.It is not sufficient solely to propound a solution on the basis of its technical merit.The solution must not only be workable, it must be accepted.

PAT can particularly be useful in evaluating this acceptability factor.The failure of the normative deductive theories of the 1960s to create any significant impact on accounting practice is generally attributed to the lack of concern of the theorists for the reality.These theorists concentrated on ideals and did not think it necessary to pay any serious attention to the possible reactions that might come from various parties if their prescriptions were put into practice.

Normative accounting issues can be handled efficiently and effectively if there is a clear understanding of why the individuals affected by accounting behave as they do. Kelly-newton (1980, p.32) is of the opinion that the determination of preferred accounting methods should not be attempted "until the parties affected by such changes have been identified, the nature of the effects have been researched, and the reactions of all interested groups con-

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sidered".

PAT is likely to be quite useful to banks and other financial institutions that make lending decisions.These entities are often required to assess the credit-worthiness of firms that use different accounting procedures.Since different accounting procedures have different implications, they have to be examined carefully before any decisions are taken as to whether the loan applications should be entertained or not.Furhtermore, loan agreements frequently contain provisions requiring firms to comply with several requirements based on accounting numbers.The entities giving the loans have to decide on the accounting procedures to be specified for the purpose of computing the concerned accounting numbers.PAT is expected to be of much help in this connection.

Some Major Criticisms of PAT

PAT has been criticised on several grounds[3].One of the important criticisms of PAT is that it is a theory of the behaviour of those who practise acounting and not of the events and phenomena which are accounted for by business firms in their published financial statements.The behaviour of those who practise accounting is undoubtedly a very important area of study, but the theory that seeks to explain and predict the behaviour of accounting practitioners cannot be regarded as the mainstream accounting theory.In philosophy, the theories that are designed to deal with the behaviour of scientists or problem-solvers are referred to as "metatheories".PAT has been categorised by Christenson (1983, p.6) as a metatheory because, according to him, the problems that are addressed by positive accounting theorists occur at the metalevel.

Sterling (1970) has made a distinction between the study which focuses on accountants and the study which is concerned with accounting.According to him, the study of accountants is the "anthropological" approach to accounting theory construction.This term has been used by him in order to draw attention to the fact that in this type of study the subject-matter is accountants' actions and not what accountants are trying to account for (p.450).The distinction between the two has been made clear by him by drawing an analogy to physics.He has observed :

> The theory of accounting ought to be concerned with accounting phenomena, not practicing accountants, in the same way that theories of physics are concerned with physical phenomena, not practicing physicists (p.450).

Christenson (1983, p.6) has drawn a similar distinction by analogy to chemistry.According to him, "(c)hemical theory consists of propositions about the behavior of chemical entities (molecules and atoms), not about the behavior of chemists".Watts and Zimmerman (1990, p.147) have, however, tried to

3. Some of the ideas contained in this section of the article have been taken from a previous article published in the *Business Studies* (Basu, 1988)

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refute this kind of argument by saying that "(i)n chemistry chemical reactions exist without chemists and one can study reactions without studying chemists". But such a thing is not possible in accounting because, according to them, there can be no accounting without accountants or accounting practitioners.

The most serious criticism of PAT seems to be the one which has come from the methodological front. Many have tried to demonstrate that the methodology that positive accounting theorists have adopted is seriously flawed. Christenson(1983, p.1) has pointed out that the Rochester School's concept of positive theory is drawn from a philosophical doctrine, called logical positivism, which is now considered a dead philosophy. According to him, the reason why logical positivism is not taken seriously by philosophers is that it is based on the misconceptions of empirical theories being concerned with "what is". It has, however, been pointed out by Watts & Zimmerman (1986, p.8) that the methodology of PAT does not imply logical positivism. This seems to be somewhat confusing especially when it is observed that the authorities on science from whom positive accounting theorists are frequently seeking support for their theory are logical positivists. On this point, Sterling (1990, p.125) has made the following observation :

> Watts & Zimmerman claim support for PAT being scientific from logical positivists and then claim that logical positivism is unscientific, thereby destroying the support claimed. Thus, W & Z contradict themselves when they seek support from these authorities.

Even if the position that Watts and Zimmerman are willing to maintain in this connection is accepted to be correct, there still remain several unanswered questions. One of these questions is centred on the justifiability of applying the methodological rules of the natural sciences to accounting which is basically a social science. Many are of the opinion that the methodological rules used in the natural sciences are not at all applicable to the human or social sciences. Two important arguments have been put forward in support of this position. First, the goals of the natural sciences are not identical to the goals of the social sciences and, secondly, social phenomena which are studied in the social sciences tend to carry different meanings in different socio-cultural environments.

Passmore (1953, p.675) has referred to the danger that is likely to arise if positivism is applied to the social sciences. It has been pointed out by him that the "actual effect of positivism in the social sciences is to lead to the production of a vast quantity of work that boasts of being scientific but is empty and commonplace". Sterling (1990, p.130) is of the opinion that a fear of this kind has been realised in PAT. He has advanced the argument that, since positive accounting theorists have restricted themselves to descriptive questions, PAT will not be able to solve the problems that are of crucial importance to the accounting profession.

Positive accounting theorists have tried to demonstrate that the theory they are propounding is a truly scientific theory because it is "value-free". This

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has appeared to many to be highly objectionable.It has been argued that there cannot exist any "value-free" theory in the truest sense of the term.The selection of issues to be researched always involve some value judgements.According to Whittington (1987, p.329), "at the most basic level, the question asked (or hypothesis tested) implies a prior view of what is an interesting question, and (that) at the level of empirical testing, value judgements can influence the choice of a maintained hypothesis".Whittington is also not prepared to accept the idea put forward by positive accounting theorists to the effect that a theory which does not offer an empirically testable proposition is a prescriptive or normative theory.He has referred to the case of mathematics in order to establish the fact that a science does not become a prescriptive science owing to sole reason that its methods are not developed by means of an empirical testing.

PAT relies to a significant extent on the market models based on the efficient markets hypothesis (EMH) and the capital asset pricing model (CAPM).But both the EMH and the CAPM have been heavily criticised in the finance literature on the ground of their being based on some unrealistic assumptions.There is a considerable body of evidence which does, in fact, contradict the EMH. If the validity of the EMH and the CAPM is questioned then the foundation of PAT gets automatically weakened.

The theory that positive accounting researchers are eager to develop is an economics-based positive theory.Although economics and accounting deal with identical subject-matter, their viewpoints are quite different.Difficulties may arise if the events and phenomena occurring in the domain of accounting are evaluated and judged from the perspectives of economics.One of the reasons why positive accounting theorists have been criticised is that they have frequently invoked the principles of neo-classical equilibrium economics in justifying the theory propounded by them.Whitely (1988, p.633) has criticised Watts and Zimmerman's *Positive Accounting Theory* (Watts & Zimmerman, 1986)by referring to the fact that the writers rely "a great deal on the dominant orthodoxy of neo-classical economics in justifying positive accounting theory and their book could be seen as presenting a methodological case for reducing accounting research to a branch of economics".

PAT is not a universal theory because it cannot explain and predict accounting practices of those countries that have accounting systems significantly different from the one prevailing in the USA. Accounting is a product of its environment, and the environmental factors that tend to influence accounting practices include legal systems, forms of business enterprises and the sources of their capital, impact of taxation, the existence of organised security markets, and the strength of the accounting profession.Since these factors vary from country to country, there exists a great deal of diversity in accounting practices across countries.In developing their accounting theory, positive accounting theorists have mainly concentrated on the accounting practices prevailing in the USA.It is in view of this that the theory they have developed has become merely a sectoral theory.

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Concluding Comments

PAT is a welcome addition to our stock of accounting theories.It has taught us many new things about the accounting enterprise.The framework that has been provided by PAT is very useful in expanding our understanding of how the accounting world operates.The framework is particularly useful in offering a clear idea about the role of contracting costs in accounting.It is true that the achievements that have so far been made by positive accounting theorists are not very remarkable, but there is indication which tends to suggest that the future of PAT is very bright.The theorists have so far been able to answer only a few questions and there are many questions that have still to be answered.The empirical techniques currently being used by positive accounting researchers in developing and testing their hypostheses are not fully developed.They have to be restructured and refined.Serious efforts have also to be made in order to improve the linkage between theory and empirical tests.Sufficient care is to be exercised in dealing with situations where anomalous results are obtained.The tendency to offer ad hoc arguments to excuse failures is to be avoided.

Positive accounting theorists appear to convey the impression that the positive approach to the study of accounting practice is the only kind of approach worth pursuing.They also tend to persuade us to believe that a theory which does not explain and predict accounting practice is a bad theory and hence it should be discarded.These are not acceptable propositions.A theory which is able to explain and predict accounting practice is undoubtedly a very useful theory but it cannot replace the other theories that are currently dominating the accounting field.As a matter of fact, it is really difficult for a theory which concentrates on accountants instead of accounting to occupy a place in the theories.

The adoption of a positive approach to the study of accounting practice can have a meaningful significance in those situations where managers have a great deal of discretion over the choice of accounting procedures to be used in the preparation of financial statements.Such an approach is inapplicable in situations where the degree of latitude available for managers in the matter of choice of accounting procedures is very low.There are countries where accounting practice is highly standardised and the accepted set of accounting procedures is characterised by a high degree of inflexibility.In a country like this the adoption of the kind of positive approach to the study of accounting practice being advocated by the members of the Rochester School of Accounting does not seem to be a meaningful proposition.

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Agency Theory

G.Sinha *

Introduction

Those were the days when owners of businesses were the entrepreneurs who provided capital, controlled the business and shared the residuals as rewards for risk bearing. With the rapid advancement of science and technology the production systems have become more complex requiring huge amount of capital and involvement of various sections of people with different skills and interests. When business was small an individual or a very small group of people could own and control the same. The owners were the risk-bearers as well as managers. They single-mindedly operated the firm to maximize their profits. But the business of today is so large in size and so complex in nature that it is beyond the capacity of an individual to perform these two functions together.

At the early stage, owners engaged employees and delegated to them some decision making power to act on their behalf. In fact, employees acted as agents of the owners. The ultimate control, however, rested with the owners as they controlled personnel, supervised the whole business and had the capacity to control their employees. But as the business grew in size and gradually became more complex, they had to delegate more decision making power to their employees. The managers, in fact, are the agents of their principals, i.e, the owners. But agents work with their self-interests. Had the owners the capacity to observe all the decision variables of the agents, they could control the agents. But that is not possible. Even if that is possible the agents will not work single-mindedly and will not utilise their private information in order to maximize the wealth of the principal. Then how will the business run? Both the principals (i.e. the owners) and the agents want to maximize their self-interests. In terms of economic theory they are utility maximizers and for their common interests they will come together and enter into contracts to perform their respective roles, to achieve group interest so that the agent may share a part of the profit pool.

Agency relationship does not remain confined only to business (Jensen and Meckling, 1976). It is applicable to all multi-person activities requiring co-operative behaviour of the participants on whom some form of decision-making autonomy is delegated. Some of the participants may not be satisfied with their shared interest. Accordingly, they may not exert their best efforts. One or more individuals can make themselves better-off by deviating from the co-operative behaviour. Thus agency problems crop up and the group suffers a loss of efficiency and the conflicts among the participants make all individuals potentially worse off. It is a fact that unless the agents are provided with incentives, they will not exert their best efforts. They may even try to grab the major share of the utilities generated by the co-operative activities, but they

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are disciplined by internal and external competition.Ultimately, a Pareto optimal situation[1] is achieved.How that can be achieved, is the subject of enquiry of the economists.The strand of theories concerning these agency problems developed by the economists are popularly known as Principal-Agent literature.In the accounting parlance the key contributors or the agents are the managers, auditors, stakers like shareholders and debtholders.Each of these agents may try to enhance their individual wealth at the cost of others.Researchers have attempted to enquire why these agents behave in a particular way and how they are ultimately restrained.Examination of agent's decision variables or maximization of social welfare are not the primary objectives of enquiry in accounting.The basic objective here is to explain why the key agents like management, auditors, accountants, or even the accounting academics, behave in a particular way, and how out of the their conflicting activities, agency losses are automatically minimized.These studies aim to help predict how the agents will behave in choosing accounting alternatives in achieving their own interests.This branch of agency theory is designated as Positive Agency Theory.In both the branches the common premise is that agents act with the motivation of realizing their self-interests.

Discussion on these two strands of ideas requires enumeration of the elements common to both the branches.Let us enquire (i) the scenario in which the large firms operate, (ii) what we mean by agency theory and, (iii) how the conflicts of interests among the principals (risk-bearers) and the agents (real controllers) are balanced.

Separation of Ownership from Control

Two major operators in large organisations are the shareholders and the managers.Let us examine their actual position in the contractual structure.Alchian-Demsetz (1972) have identified the classical firm as a contractual structure with the following elements :

i) Joint input production,
ii) Several input owners,
iii) One party who is common to all the contracts of the joint inputs,
iv) One who has the right to renegotiate any input contract independently of contracts with other input owners,
v) One who holds the residual claim, and
vi) One who has the right to sell his central contractual residual status.

The analysis shows that in large corporations, the elements (iii) and (iv) perform the managerial function, while elements (v) and (vi) shoulder

1. "A situation in which it is impossible to make any one better-off without making some one worse-off is said to be Pareto-optimal... Conversely, a change that makes no one better-off and at least one worse-off is a decrease in social welfare".A. Koutsoyiannis, *Modern Microeconomics*, 2 ed. ELBS, 1979,p.526.

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the risk-bearing activities.Jensen and Meckling (1976) also recognize this separation of functions.In small firms these two functions are carried out by the entrepreneurs.But in large corporations it is not so.The concept of entrepreneurship is not indispensable today.Fama (1980) points out that both the papers of Alchian-Demsetz and Jensen-Meckling retain the concept of entrepreneur.Fama (1980) opines that 'retention of this idea prevents from developing a perspective on management and risk bearing as separate factors of production'.

Fama strongly argues that "ownership of capital should not be confused with ownership of the firm.Each factor in a firm is owned by somebody.The firm is just a set of contracts covering the way inputs are joined to create outputs and the way receipts from outputs are shared among inputs.In this 'nexus of contracts' perspective, ownership of a firm is an irrelevant concept".He suggests further that we should set aside the "role in the firm usually attributed to the entrepreneur".This separation of ownership from control leads to the development of the concepts like agency theory.

Circumstances Leading to the Growth of Agency Theory

In the classical theory of firm, the 'economic man' i.e., the entrepreneur is assumed to play the dual function of sharing the risk through owning the business and controlling the same through decision making.All he does with the motivation of maximizing the profit.He assembles various factor inputs with agreement to pay fixed returns, enjoys the surplus of revenue and remains ready to accept the uncertain and possibly negative difference between total revenues and costs.

But in reality, the two functions, risk-sharing and decision-making are done by different sets of people.In a meaningful sense, there is no owner of business.The risk-bearers are in fact the owners of capital i.e., owners of securities.The decision making in a firm (i.e, controlling function) again is the province of the manager who controls but does not own capital.But who are the enterprisers?They may not be the owners.But in real sense, they rein the ultimate control.What are their motivations for such work?The literature on classical theory does not address adequately the motivational problems of the manager who performs such organizing and controlling functions.Thus, there are two major players in the game : the securityholders (i.e, residual claimants) and the managers (i.e., the decision makers).Interactions, co-operations and conflicts among the two groups cannot be analysed with the classical theories of firm.

Growth of Agency Theory

Scholars have heavily dwelt on the inadequacy of the classical theory.A stream of researches has been stimulated with a view to explaining the above problem, where the firm is viewed as a set of contracts among factors of production, with each factor motivated by its self-interest (Fama, 1980). Since the emphasis is on the importance of the rights in the organization established

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by the contracts, the theories are designated as 'property rights' literature.The specification of individual rights determine how costs and rewards will be shared by the different parties to the contract.Here the major parties are the shareholders and the managers.The contractual relationship between them may be considered agency relationship[2]. Strictly speaking, the relation between them is not exactly similar to that between employer and employee.

In every contract there are two parties.If owners of every factor of production are considered as one party, then who is the other party to the contract? According to Jensen and Meckling (1976), managers are the agents of the investors.Hence, by interpretation, owners of capital are considered principal and other owners of factors of production are assumed to be the agents.

But there is another interpretation.If the firm is considered a 'nexus of contract' or a team, then this team may be assumed to be a legal person on whose behalf the manager enters into agreement with owners of various factors of production.In such cases this legal person or the team is looked upon as the principal and others as the agents.This interpretation holds good when we speak of agency cost of debt or agency cost of outside equity.In such cases the equity holders or owner-managers act as the agents of the team.They have the power to take decisions to enhance their personal wealth at the cost of debtholders or the outside equity.These issues are disccussed later on.

Jensen and Meckling define agency relationship as " a contract under which one or more persons (the principals) engaged another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal".Thus there will be a divergence or conflict.But the classical theory cannot adequately explain this situation.Jensen and Meckling point out that the principal can limit divergences from his interest by establishing appropriate incentives for the agents[3].

This interpretation can justify why the firm runs in the environment where the risk-bearers delegate deliberately their decision making power to the manager for maximizing his own utilities.It explains the circumstances where the managers control the business even though they are not required to bear the loss arising out of their decisions.It shows also the ways how the agent, i.e, the manager can be motivated so that his welfare as well as the principal's welfare will be maximized.Since the agents possess some degree of decision making autonomy, they may not work in the best interest of the principal, particularly when the latter may not be in a position to monitor the

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2. Literature on agency relationship has developed independently of the 'property rights' literature, even though they deal with similar problems.In fact, they are complementary to each other.
3. "The problem of inducing an agent to behave in order to maximize the principal's welfare exists in all organizations and in all co-operative efforts and at every level of management in firms, in educational and government institutions, in unions, and even in performing arts.Theories to explain the form which agency costs take in each of these situations is now lacking." - Jensen and Meckling (1976).

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agent directly.To a certain extent they may cooperate, beyond that they may be in conflict.Theories concerning the agency relationship problems are characterised under the rubric 'agency theory'.

Conflict vs Cooperation

In the agency theory it is assumed that individuals are motivated by self-interest.It does not mean that there does not exist a common interest among the participants of a firm.According to Fama (1980), "the firm may be viewed as a team of individuals whose members act from self-interest but realize that their destinies depend to some extent on the survival of the team in its competition with other teams".

Thus it is evident that welfare of an individual is dependent upon the success of the team. Hence the existence of cooperation among the members of the firm is a necessary condition for the success of the team.This cooperation, however, might result in an increase in the welfare of some members without a decrease in the welfare of any other member.Thus the self-interested and cooperative behaviour diverge.The extent of this divergence depends on the contractual relations among the members.The agency theory aims at explaining such divergences and provides insight into how optimal contractual relationships are established.

Now the question that may arise is : when individuals cooperate with the motive of self-interest, why do the self-interested behaviours differ from the cooperative behaviour? Answer to the question demands explanation about what we mean by cooperative behaviour.According to Baiman (1982), the behaviour of the members of the firm may be considered cooperative when the following three conditions are met :

" i) All members honestly share all information;
ii) Each member implements the action rule he is assigned;
iii) All members agree on a set of individual action rules and method of sharing the uncertain outcome, resulting from their individual actions such that no one can be made better off without making someone worse off ".

But this solution through cooperative actions does not consider the motivational problems.The optimum sharing principle as mentioned in rule (ii) does not guarantee a situation where each member will reveal his information honestly in his self-interest and will implement the action rule assigned to him.In other words, in spite of the existence of the sharing rule, in his self-interest one member may act in a manner different from the agreed rule.When one or more members, being motivated by self-interest, does not or do not act cooperatively, then all other members will not lend their cooperation and will work purely with self-interest.Then all members will be made worse-off than if they worked cooperatively.The environment in which a firm operates is not such that in the self-interest each member is interested in revealing his information honestly.Hence, the cooperative behaviour is not achievable for

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self-interested people.Agency theory guides us to design the employment contracts in such a way that the conflict between the co-operative and self-interested behaviour will be minimised.It requires the study of the enforceable behaviour of self-interested individuals.

Why does the divergence exist? The principal hires his agent to discharge certain duties.But, in reality, he is not able to motivate the latter properly to perform those assigned works.The agent is supposed to provide inputs to the firm's production process and is paid for collecting and procuring information for decision making.If the principal can observe the inputs provided by the agent, then he can use the inputs as the basis of contract.In such cases the agent can be motivated as he is paid only for the inputs he supplies.But when the principal cannot observe the agent's actual inputs, some surrogates (i.e. factors) other than these inputs are usually considered as the basis of contract.Use of such an indirect variable may reduce the agent's incentive to provide inputs, and this ultimately leads to a loss of welfare of both principal and the agent.It indicates imperfectly resolved conflicts between the two parties.The motivational problems arising from the contracts based on imperfect surrogates are called *moral hazards*[4].

Divergence between cooperative and self-interested behaviour may arise when the input supply decisions provided by the agent are based on his private information that cannot be observed by the principal.Such situations develop in decentralized organisations where subordinates are typically better informed about the production or marketing environment than their bosses.Hence when the agent is motivated to misrepresent his private information in order to shirk his assigned duties, the divergence between cooperative and self-interested behaviour develops.Such types of problems are called *'problems of adverse selection'*.Welfare-reducing problems of moral hazard and adverse selection can be mitigated only when the principal can collect correct information on agent's input choice and private information."Since the principal can observe both the agent's input and information, he can verify whether the agent has in fact fulfilled his contract" (Baiman, 1983).The agent is paid accordingly.If he has not, he is paid a smaller amount. Such types of contract is termed as *forcing contract*. Hence the principal-agent relationship is reduced to a market-mediated transaction.Thus it appears that maximization of the welfare of the members of the firms depends on the availability and use of information in contracts.

The Role of Self-interest

The notion of self-interest lies at the core of the agency literature.Here

4. "Moral hazard, in short, refers to an ethical or moral problem where an agent commits fraud in collection of his benefits.It speaks of loss-producing propensities of individual agents and comprehends all of non-physical hazards of risk.It reflects the hazards that arise from the failure of individuals who are affected by contract to uphold the accepted moral qualities.Thus every deviation from correct human behaviour that may pose a problem for the principal may be considered a moral hazard" - M.V. Pauly, The Economics of Moral Hazards, *American Economic Review* Vol. 58, 1968, pp. 53-55.

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it is assumed that each individual's solutions are determined endogenously and are based on self-interest.Moreover, every individual expects that others also behave in their own interests.Hence each individual's expectations about the other's choices must be in equilibrium.Thus the principal introduces that payment and monitoring devices which can utilize best the agent's self-interested behaviour.The agency theory focuses on the point that the power of self-interest acts as a stabilizing and predictive force.

But how do the expectations of all individuals come to an equilibrium? Utility maximization of all the individuals demands reconciliation between focus of self-interest and shared interest.According to agency theorists this can be achieved by using the intersection of two game theory.They speak of self-enforcing feasible contracts as defined by *Perfect Nash Solution* (Baiman, 1982).

Here it is assumed that the self-enforcing aspect comes from the fact that the payment schedule monitoring system pair is such that the agent does (in his own best interest) what the principal expects him to do.According to *Perfect Nash Solution*, this self-enforcing contract is called a self-enforcing triple $\{n, I(*), e\}$

Here, n refers to information system used for monitoring, $I(*)$ refers to the amount paid to the agent, and e refers to preventive maintenance (i.e the effort) exerted by the agent.

From this set of *Perfect Nash* self-enforcing employment contracts, all contracts that are Pareto inferior to at least one other contract in the set of self-enforcing contracts are eliminated from consideration.For a given feasible information system, n , the principal mentions one by one all feasible payment schedules and the agent's optimum effort to each monitoring system - payment pair.Each triple $[n\ I(*), e]$ will create a pair of expected utility points, one for the principal, and the other for the agent."From this set the principal eliminates all those triples that produce Pareto inferior expected utility pairs.The principal is then left with Pareto frontier for the given monitoring system, n,..... All Pareto comparisons between information systems are comparisons between Pareto frontiers, not between individual expected utility pairs" (Baiman, 1982).

Here two solution concepts are involved : cooperative concept and the agency solution concept.In cooperative solution concept, solution is derived by applying Pareto criterion to all possible combinations of n, $I(*)$ and e, subject only to $I(*)$ being feasible, given n.In agency concept also solution is arrived at by applying Pareto criterion to all possible combinations of n, $I(*)$ and e, subject only to

(1) $I(*)$ being feasible, given n, and

(2) e being the agent's optimal response to n and $I(*)$.

This second constraint pinpoints the idea of self-interested behaviour which speaks of the divergence between the cooperative solution and the self-interested solution.Thus, the only difference between the two concepts is that

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the motivation issues are not considered in the cooperative solution concept. Hence we are to adopt agency solution concepts.

According to the agency solution concept, Pareto optimal situation requires the maximization of firm efficiency.Such efficiency is defined in terms of the expected utilities of the principal and agent.But the principal's utility is the function of the probability distribution of his residual claim [X - I (y)] (where, X = the sales output and I (y) = payment to the agents).The agent's utility is a function of his effort *(e)* and the probability distribution of his payment [I (y)].Hence the probability distribution of sales output (X) is not the only consideration of employment contract.The other indispensable factor is the payment schedule [I(y)] because the latter speaks of how the risk associated with the probability distribution of the sales output will be shared.

The firm's employment contract is the result of the trade-off between its productive efficiency and its risk-sharing efficiency.Productive efficiency is realised when the agent's incentive to provide his effort have effects on the probability distribution of sales output X through the employment contracts.For instance, if an agent is given a fixed fee, he has no incentive to exert his effort and bears no financial risk.In order to get better sales output probability distribution, agent's incentive to provide greater effort should be enhanced by means of increasing the agent's financial risk.The agent will be motivated to put his maximum effort if he is paid a flat fee and a part of the balance of the sales output.Thus an arrangement should be made so that the agent must bear a part of the financial risk.Thus a trade-off between productive efficiency and risk-sharing efficiency is indispensable for Pareto optimal situation.

Principal-Agent Literature

The two basic assumptions underlying the principal agent model are: (i) The agent enjoys some decision-making authority so that the agent can exercise choice over certain decision variables.The exercise of such choice affects the welfare of both the parties to the contract — the agent and the principal; (ii) They usually differ as to their preferences about the agent's alternative decision variables.For instance, the agent prefers to exert less, the principal desires the agent to exercise more.In other words, there is a conflict of interest between the two parties.Total earnings to the agency, for instance, hangs partly on the state of the world, θ ,and partly on the extent of action, *e*, or effort, exerted by the agent (Ross, 1971). Naturally, both the principal and the agent like more money than less, but the former is expected to have no interest in the agent's level of action, even though the agent derives disutility from his endeavours (Smith, 1970).

Monetary payoff to the agency depends on the states of the world and the level of efforts exerted by the agent.But conflict arises as to the sharing of the payoff.How the conflict arises and how that is settled are the objects of enquiry of the principal-agent literature.Let us examine the issue with an illustration.

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Illustration

There are four 'states of the world' and the agent can opt for any of the three alternative effort levels. States of the world have different probabilities. In the most favourable state, whatever level of effort the agent may exert, the payoff is the maximum, and in the worst state whatever may be the level of effort, the payoff is the minimum. In between the two extremes, there are two states, in one, rate of return on the efforts is higher than that of the other.

Let us assume further that the principal is risk-averse, though he likes more money than less. Let R denote the total payoff and R_p the principal's share and R_a the agent's share in total payoff. Let us assume also that the relation among agent's evaluation on his utility, payoff and effort takes the following form.

Agent's utility = $R_a^{1/2} - e^2 = 100$

It is evident from the relation that the agent is risk-averse. That is why the utility he derives equals the square root of the monetary payoff, while his disutility from effort equals the square of his effort level. That means, while he greatly magnifies his disutility (i.e, sacrifice), he belittles heavily his share of payoff.

Significance of the conflict of interest between the two parties may now be examined with the following example.

An Example of Principal-Agent Model

Table - 1

Statement of Effort Levels and Probabilities of Total Payoff at Different States of World.

Levels of efforts \ States of world / Probabilities	S_1 0.3	S_2 0.3	S_3 0.2	S_4 0.2
$e_1 = 5$	60,000	60,000	60,000	45,000
$e_2 = 4$	60,000	60,000	45,000	45,000
$e_3 = 3$	60,000	45,000	45,000	45,000

Situation-I : The principal can observe the agent's effort level and fixes the agent's payoff at 11, 881. Since the principal is the residual claimant, he wants the agent to work at his (agent's) best effort level (i.e, e_1). The agent, being a rational person, exerts minimum effort level (i.e, e_3). Here the agent's utility is maximized, because his utilities from monetary payoff is $11{,}881^{1/2} = 109$, whereas his disutility from effort is 3^2 (i.e. 9). Hence his expected utility is $11{,}881^{1/2} - 3^2 = 100$. If he exerts efforts of a higher magnitude, then his expected utility will be less than 100. Here, because of his self-interest, he will not exert more effort.

Situation-II : Here also the principal can directly observe the agent's effort level. Because of the above conflict of interest, the principal drafts a

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contract with the provision that the agent will be given an incentive for exerting additional effort.The agent will accept the terms only when the expected utility under the new contract equals that of the old one.Since the agent's effort is observable, the principal will expect that the agent will select effort level e_1.But how much will the agent demand in exchange? It will be determined through using the relation $R_a^{1/2} - e^2$.

Here the payoff R_a should be 125^2 or 15,625. *[$R_a^{1/2} - e^2_1 = 100$, Hence, $R_a^{1/2} = 100 + 5^2$, $R_a = 125^2$, or, $R_a = 15{,}625$]*

Solving the above equation it is found that the agent's expected utility will be 100, provided his new payoff is fixed at Rs.15,625.

The principal will also be better off under the second contract than he was under the old one, because his residual claim will enhance from Rs. 37,619 to Rs. 41,375. This is determined as below.

Total payoff in case of Situation I, when e_3 is exerted will be.(Rs. 60,000 X 0.3 + Rs. 45,000 X 0.7) = Rs. 49,500.

Hence *Rp* will be Rs.49,500 - Rs.16.881 = Rs.37,619. Again, total payoff in Situation II (when e_1 is exerted) will be:

Rs. 60,000 X 0.8 + Rs. 45,000 X 0.2 = Rs. 57,000

Rp will be Rs. 57,000 - Rs. 15,625 = Rs. 41,375

In the second case the principal can force the agent to adopt the specific effort levels e_1 as he can directly observe the effort levels of the latter.That is why this type of contract is designated as *'forcing contract'*.

Situation - III : In real life, it may not be feasible for the principal to observe directly the agent's effort level.Under such a situation, the agent's incentive must be related to some kind of variable that is observable to both the parties.It may be the case that the principal can only observe the total payoff *R*. He cannot observe the agent's effort level.How can the principal provide incentive to the agent so that the expected utility of the latter will be maintained as before?The order of sharing the payoff may be reversed where the principal gets a fixed payoff and the agent the residue.The agent can accept the guaranteed payoff to the principal only when his own expected utility is maintained at 100. But how can we determine the amount of the payoff that would be guaranteed to the principal?

From the situations II and I, it is evident that maximum and minimum total payoffs are earned when the agent exerts his efforts at e_1 and e_3 levels, respectively.Hence the principal's payoff *R* at Situation III will be less than Rs. 41,375 (i.e, when e_1 is exerted) but more than Rs. 37,619 (i.e, when e_3 is exerted). With a numerical example the proposition may be examined.

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Table - 2
Statement of Expected Utility of the Agent with a Fixed Payoff to the Principal

Effort Level	$R_a^{1/2}$	$R_a^{1/2} - e^2$		Utility
e_1	$(60,000 - 40,000)^{1/2} \times 0.8 + (45,000 - 40,000)^{1/2} \times 0.2 = 127.28$	$127.28 - 5^2$	=	102.28
e_2	$(60,000 - 40,000)^{1/2} \times 0.6 + (45,000 - 40,000)^{1/2} \times 0.4 = 113.14$	$113.14 - 4^2$	=	97.16
e_3	$(60,000 - 40,000)^{1/2} \times 0.3 + (45,000 - 40,000)^{1/2} \times 0.7 = 91.91.$	$91.91 - 3^2$	=	82.91

The above table shows that the agent's expected utility will be maximum (i.e. 102.28) if he works at effort level e_1. Under this new arrangement, the principal expects Rs. 40,000 which is better than the original contract (when the agent's payoff was fixed).But at this level, the principal's payoff is less than what he expects under the ideal *'forced contract'* (i.e. when he can observe the agent's efforts level and can provide incentive to the agent's additional effort).Now the results may be tabulated as below :

Table - 3
Earnings of the Principal and the Agent under Different Situations

Situation		Principal's Payoff	Agent's Payoff	Total Payoff
		R_p	R_a	R
I.	Fixed pay to the agent	37,619	11,881	49,500
II.	Forcing contract, when the efforts of the agent can be observed	41,375	15,625	57,000
III.	Principal gets a fixed payoff, and the agent enjoys the surplus	40,000	17,000	57,000

Thus it is evident that when the principal cannot observe the effort level exerted by the agent, but can observe only the outcome, it is better for him to accept a fixed return and allow the agent to share the risk.

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Application of the Theory in Managerial Accounting

Let us examine how the agency theory could offer guidelines and insight into the accounting world especially in matters concerning the selection of alternative accounting systems.Baiman (1982) examines certain issues.He enquires whether the agency model, which includes a model of individual behaviour within a firm, can serve both the predictive and positive roles, and be a self-contained model of managerial accounting.He examines the agency model as a positive model of managerial accounting in the following major areas of decision making process.

Responsibility Accounting

In responsibility accounting it is assumed that performances of an individual should be evaluated only on the basis of the factors that he controls.In other words, an individual should be appraised only on the basis of those outcomes over which he has control.Such evaluation requires that post-decision information should be arranged in such a manner that all costs and benefits can be traced to the person who is directly responsible for them.

In a world of certainty, agency theory is compatible with the above information of responsibility accounting because the agent is assigned a task; how far the assigned task has been performed by the agent can be verified by the principal, and the agent is paid the agreed fee.But under uncertainty, the basic assumptions of agency theory are not in conformity with the above interpretation because Pareto optimal contract calls for risk-sharing.Agent's payoff would be a function of two factors : (i) his task performance and (ii) the state of realization for which he has not been held responsible.However, a risk-averse principal "would not use the agent to share risk for other than motivational purpose" (Baiman, 1982).In those situations both the agency theory and responsibility accounting suggest that the agent be awarded on the observed performance.

The other area of difference between the two is that, from the perspective of agency theory, an agent should not be evaluated only on the basis of the costs for which he is directly responsible.Detailed information should be collected to learn about agent's action choice.Hence the goal of agency theory and responsibility accounting in evaluating agent's performances are different.The latter system depends entirely on the activities that the agent controls.Whereas under the agency theory it is assumed that it would be optimal to evaluate the agent on the basis of the firm's entire outcome.According to Baiman, even output over which the subordinate exercises no influence may provide information that the supervisor may use to improve his evaluation of the agent's decision making process.

Budgeting

Let us examine whether budget-based accounting data are Pareto optimal in the light of agency theory.Demski and Feltham (1977) enquired into the issue.In their opinion budget-based payments meet the following conditions:

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i) Workmen's compensation is a function of some observable outcome resulting from their efforts.

ii) The contract specifies a standard outcome level that segregates possible outcomes into favourable and unfavourable subsets, and

iii) Workmen's compensation function comprises two functions : one being the favourable subset and the other unfavourable subset.From the last criterion it may be inferred that budget-based contracts cannot always be identified in observable units.

Demski did not find budget-based contracts Pareto-optimal.Budgets, in fact, are associated with motivational problems.However, Feltham (1977), Harris and Ravir (1979) found situations under which budget-based contracts are optimal and they provide cooperative solution.But they rely on unbounded penalties and support cooperative solutions, which are rarely observed in practice.

Enquiries have not yet been made whether the agency model can predict the use of budget-based contracts only for the situations where they are actually observed and not in other situations.The agency model is consistent with the budgets.But a finer test of the model based on comparing actuals with predictions is an immediate necessity.

Participative Budgeting

In participative budgeting the agent is allowed to participate in the setting of the standards or budgets in terms of which his performances will be evaluated.Here the principal discusses with the agent to set goals for the latter for different activities rather than for just the profit or cost to be assigned against the agent.

Various agency literature have emphasized that people involved in participative arrangements extract utility from the participation process.The extent of additional action depends on the magnitude of influence of such participation on the firm's productivity.According to agency theorists, the value of participative budgeting arises from the transmitted information.It is a fact that there are some signals which are available only to the agent.The agency theory attempts to incorporate a pre-decision information system with such a signal.Then a communication will develop between the principal and the agent within the time period subsequent to the agent's receiving the private information but prior to the period when the firm's sales output is revealed.This communication (i.e. participation) will have its influence on the agent's payment schedule.

If the agent's private pre-decision information is perfect (i.e. it can be known by the principal in detail, about the agent's private pre-decision information), then the information is of little value to the principal, as through observing the output he can derive all bits of information.When the agent's pre-decision information is imperfect, its honest revelation would be very valuable.If any value is achieved with this information when the agent reveals honestly to all, then he should be allowed to communicate in a manner that

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maximizes his expected utility.Thus, participative budgeting may be used which ultimately maximizes the welfare of both the principal and the agent.

Budgets are, in fact, bargained because of the personal goals of managers who deliberately maintain slacks as protective means.Provision for incentives may minimize such slacks.That may be realised through participative budgeting as an effective means in achieving that end.

Conditional Variance Investigation

Exception reporting, multistage audit and conditional variance investigation are the commonly used control techniques in managarial accounting.But these involve monitoring costs.While initiating an investigation one should keep in mind such costs, otherwise the investigation will be a trivial one.But most of the investigations deal with post-decision information involving costless monitoring of agent's activities.Unless the monitoring is carried on with the condition that it will provide information on the degree of effort exerted by the agent against the incentive provided to him, the investigation loses much of its significance.

Most of the researches on investigations are based on non-agency models where the investigation has no possibility of motivational effects.The basic assumption was that both in-control and out-of control states remain indifferent as to the choice of investigation policy.Such an assumption may be reasonable when the object is an automated machine, but not when the object is a human being.The basic objective of variance investigation is not confined only to unearthing the undesirable behaviour that is not attempted, as there is fear that future investigation may reveal such things.

Information on agent's exerted effort should be gathered and be made public so that it may be used as an argument in potential payment schedule. Demski and Feltham (1977) studied conditional variance investigation by using the basic agency model. Baiman and Demski [1980 (a)] used a similar model.They opined that as conditional variance investigation policy has both motivational and risk-sharing implications, the optimal policy tends to be quite complex.

These studies have questioned the rationality behind different structures for conditional-variance investigation policies that are observed in practice.In fact, the optimal policies are the outcomes of production process and risk-sharing characteristics of the principal and agent.In these studies, the agent is not assumed to be a machine.In a simulation study the agent may be considered a rational utility-maximizing individual.

In the ultimate analysis it may be pointed out that there is a need for gathering the information on which variances are computed within the agency model, but the computation of variances alone has little value.The necessity of computing variances lies in the notion that variances serve as easily understood means of communication.But the extant system does not throw light on the motivational aspects of the agent's activities.

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Standards

Standard-setting lies at the core of variance investigation and budget-based contracts.Standard output and / or cost levels provide signals as to when and where investigation is to be carried out.But in traditional managerial accounting standards are considered either attainable or historical average.Is the knowledge in agency theory of any help in choosing correct standards?Agents exert their efforts with the motivation of achieving their self-interests.They are paid according to their performances, which are compared with the pre-set standards.Hence, both the principal and the agent are interested in setting standards.For the principal, standards are used as a measurement and control device, while for the agent they indicate the level of quality and quantity he is to attain and achieve.In order to attain an optimal situation, the incentives to the agents should be balanced with the level of effort they can exert.Hence both the points are to be considered while standards are set.Once the motivational issues are given due consideration, the agents will exert their best efforts to satisfy their self interest.That apart, from the principal's point of view the standards and variance analysis techniques provide them efficient signals for monitoring agent's activities.

Studies on these aspects have been made since the late seventies.Demski and Feltham's (1978) work, for instance, provides an indication that optimal performance standards might be more than or less than the expected performance.Harris and Ravis's (1979) work points out that cooperative solution in such cases is achievable.The possibility of selecting the optimal standards and their sensitivity to particular parameters of the problem is not yet explored.Once done, such work will provide valuable insights in setting standards and formulating budget-based schedules.

Positive Agency Theory

While principal-agent literature contributes to the science of multi-person decision theory, the Positive Agency Theory is engrossed in explaining why the economic agents in organizations behave as they do, why the organizations take the form they do, why accounting practices take the form they do (Jensen, 1983).The choice of accounting method is viewed here as part of the choice of organization form, choice controlled by competition.Jensen pinpoints that accounting practices differ across organizations.For instance, in non-profit organizations capital assets are not recorded in their balance sheets, depreciation is not calculated there.Partnerships are dominant in sensitive service activities like law and public accounting, while publicly held corporations are dominant in large, complex capital intensive activities.Non-profit organizations dominate activities like education and religion.Since accounting practices are significantly affected by an organization's structure, it is worth enquiring the relation of accounting procedures to the development of the firm's organization.Hence according to Jensen (1983), a thorough understanding of organizational forces is important to a theory of accounting.

According to the propounders of positive agency theories, theory of the

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firm is practically a theory of market, where equilibrium position of market forces are studied.The firm is, in effect, assumed to be an elementary component of the analysis, even though, in fact, it is an exceedingly complex subsystem.But the researches based on such a model of the firm have no implications for how organizations are structured or how they function internally (Jensen, 1983).Here 'people' problems or information problems are not addressed.But positive agency theorists have enquired the internal complexities with this complex subsystem.

According to them, an "Organization may be defined as a legal entity that serves as a nexus for a complex set of contracts among disparate individuals" (Jensen, 1983).The multi-lateral contracts between agents (representing market relations) are supplanted by a system in which the relations among the agents are effected through unilateral contracts with the legal entity (that serves as the contracting nexus).In this context the agents are the suppliers of labour, capital, raw materials, risk-bearing services, and customers.

This view dispels the idea that organizations are persons and helps in pinpointing that the organizations cannot have preferences.The behaviour of the organization, in fact, is the equilibrium behaviour of agents with diverse and conflicting objectives in a complex contractual system.

Survival of the Fittest

If the agents, (i.e. elements of the complex subsystem) have conflicting and diverse objectives, how do the organizations survive? Earlier in this article it has been discussed that in an organization the agents work as a team and they are disciplined by the competition from outside.Some agents, it is true, consider that it does not pay to enforce all contracts perfectly.Hence one or more of the contracting parties can capture the benefits from reducing the cost to control the agency problem.But they are ultimately restrained from not enforcing the contracts.How they are restrained is discussed later on.

Organizations, however, compete with each other to deliver the activities demanded by customers.Those organizations survive that can provide goods or services at the lowest price while covering both production and agency costs.Hence survival of a firm depends on how an organization minimizes the cost necessary to control agency problems and how it combines these contracts with the production technology.Thus the 'nexus of contract' interpretation of an organization leads to the notion that the organizational forms will be those that minimize the agency costs.But what is the agency cost?

Agency Costs

In the context of agency theory, agency cost may be described as the cost necessary to mitigate the conflicts among the agents arising out of agency relationship in an organization.Such costs always need not necessarily be monetary.They may also be non-pecuniary.Shirking of responsibilities, using abnormal perks and benefits fall under this category.But both the pecuniary and non-pecuniary costs bring loss to the organization.This is why, as men-

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tioned earlier, the organization forms will be those that minimize the agency costs (Jensen, 1983).

According to Jensen and Meckling agency cost is the sum of —

i) the monitoring expenditures by the principal,
ii) the bonding expenditures by the agent, and
iii) the residual loss.

Monitoring costs : The principal in his self-interest tries to give sufficient incentives to the agents.That apart, he incurs expenditures to limit the aberrant activities of the agent.Sum of these two costs represents monitoring costs.These are not just the cost of observing and measuring the behaviour of the agent.They include the cost of the efforts on the part of the principal to 'control' the behaviour of the agent through budget restrictions, compensation policies, operating rules and similar activities.

Bonding costs : The agent may also find it beneficial for him to spend resources (i) to ensure a situation so that he will be forced to take certain steps which may harm the principal or (ii) to make certain that the principal will be compensated appropriately if he is forced to take such steps.It is impossible, according to Jensen and Meckling (1976), to ensure that an agent will take optimal decisions from the principal's view-point when niether monitoring cost nor bondings costs are incurred.

Residual loss : Usually both the agent and the principal incur positive (monetary and non-monetary) monitoring and bonding costs.Even though such costs are incurred, there may exist some divergence between the decision taken by the agent and the decision that would maximize the principals' welfare.Monetary value of this reduction in the principal's welfare is also a cost of the agency relationship.This is called residual loss.

Other Instances of Agency Costs

Jensen and Meckling think that agency costs may arise in any situation involving cooperative efforts even though there is no clear cut principal-agent relationship.Alchian and Demsetz (1972) spoke of the 'loss arising from shirking and monitoring of team production' in the context of the theory of firm.Thus, it appears that the concept of agency cost of Jensen-Meckling is similar to that of loss from shirking and monitoring of team production in the context of the theory of firm.Thus, it appears that the concept of agency cost of Jensen-Meckling is similar to that of loss from shirking and monitoring as stated by Alchian and Demsetz.

Conflicts in agency relationship may develop on various grounds.For example, conflict may arise between owners who manage the business and the outside equity holders, between management and auditors, between owners and debtholders.One of the parties to the contract, naturally the one in a dominating position, may try to enhance it's personal wealth at the cost of the others.All these conflicts or divergences in interests result in agency costs..How are such costs mitigated? Is there any self-correcting mechanism

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in the organization system to eliminate or at least to mitigate the agency costs?Perfect rationality assumption comes to our rescue.

Rationality Assumption

The basic assumption of agency theory is that all the players behave rationally and expect that other players also behave rationally.In a debt contract, for instance, if there is any scope for shareholders to transfer wealth from debtholders in favour of themselves, it is assumed that there is every possibility that the debtholders will fully anticipate the same at the time of debt issue and the price of the debt will be settled accordingly, Hence, the influence of the agency cost (i.e. cost of conflict arising from the abnormal behaviour of a party to the contract) of a contractual relationship will be directly incorporated in the decisions of the contracting parties when the contract is made.Thus, it is assumed that always there exist sufficient incentives to the parties so that marginal cost of monitoring and bonding activities equal marginal gain from reducing the residual loss.Jensen and Meckling clarified the issue by providing an illustration.It may better be termed as agency cost to outside equity.

Agency Cost to Outside Equity

Simply speaking, agency cost refers to cost or loss arising from conflict of interest.The owner-manager may try to gain through shifting loss to the outside equity shareholders.But on ultimate analysis it will be found that the owner-manager himself will be forced to bear the loss or the cost.Jensen and Meckling (1976) illustrated the issue with an example.They assumed that when the manager is the sole owner he consumes on the job, through shirking, perquisites or incompetencies.Since there is no outside shareholder the owner-manager entirely bears the managerial cost of such consumption. That means, every rupee spent in this way results in loss of one rupee to his personal wealth.

Now if he sells a portion, α, perks to outsiders, the marginal cost of one rupee of perks to the owner-manager will be the fraction $(1 - \alpha)$ of a rupee.Hence he may be induced to spend heavily on perks etc.Thus the manager wants to shift α fraction of the cost of his perks (i.e. shirking, incompetance etc.) to the outsiders.

But according to Efficient Market Hypothesis (EMH) i.e., strong rationality asumption, it may be inferred that at the time of issue of equity, the outsiders will fully anticipate these losses from excessive perk consumption.In consequence the value of the firm will decline.Thus, the owner-manager is forced to bear the entire loss resulting from excessive perk consumption.

Jensen and Meckling introduced the concept of 'gross agency cost'.According to them, the value of the firm differs according to the commitment of the manager as to his drawings for consumption on perk.If he can commit in advance an agreed level of perk expenditure, the value of the firm will be high, but if he does not, the value will decline.The difference between the two values is termed as *gross agency cost*.If the owner-manager in the presence of outside equity-holders is willing to pay for his extra consumption

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of perk, then the excess of gross agency cost over this cost of extra consumption is designated as *net agency cost.*

The relationship may be shown as below :

Gross agency cost, $A_g = V_c - V_{nc}$

Where, V_c = Value of the firm when the owner-manager *commits* in advance an agreed level of perks and other benefits he will consume.

V_{nc} = Value of the firm when the owner-manager *does not commit* in advance the level of perks and other benefits he will consume.

Net agency cost, $A_n = A_g - P_p$

Where, P_p = The cost of extra consumption of perks which the owner manager agrees to pay.

Thus, less the owner-manager consumes as perks, more the firm value, and less the agency cost he is to bear ultimately.

Since it is evident that the owner-manager is to bear the net agency cost entirely, according to rationality assumption it may be inferred that he will try his best to reduce the cost as far as possible.The discussion leads to the conclusion that the agents cannot do whatever they like, because the impact of their action will be disclosed, the value of the firm will be determined accordingly, and in consequence the agents are to bear the loss ultimately.Thus, they are disciplined.

Agency Cost under Complete Separation of Ownership from Control

Now let us examine what happens to agency cost when owners are not at the helm of the firm.Fama and Jensen [1983 (a), 1983 (b)] have dealt in detail on the issue.Under sole proprietorship business, the problem of agency cost does not arise.There is neither an agent, nor any scope of sharing risk with others.But form of business changes according to the nature of business.Fama (1980) has discussed in detail how various forms of organization develop to suit the changing needs.In service oriented firms like law, accountancy and medicine sole proprietorship or partnership form is most suitable, because services of individual are of prime consideration for the survival of the business.But in case of open industries i.e. in case of manufacturing industry involving huge amount of capital and employing large number of intelligent managerial personnel, a system of organization which can arrange for bearing the colossal residual risk is required. Such form of business requires men with high degree of managerial skill who may not be risk-bearers.Under such a circumstance a system develops where separate groups of people shoulder the residual risk and the burden of control.

The question is : how will a firm survive when the people who have the right to decision making activities do not bear a substantial share of wealth effects of those decisions? Let us examine how this contradictory situation develops, and how the problems arising out of such situation can be solved.

The development of new knowledge and unexpected yet rapid technological progress by its very nature leaps into the unknown.In the earlier days

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" the owner of a business typically, is supposed to assume all the risk of uncertainty, paying out the unexpected losses and enjoying the unexpected gains.A man's capacity for running a business will not be accompanied by a desire or ability for bearing the accompanying risk" (Arrow, 1970).Hence, a series of institutions for shifting risks have evolved.Any way, under such a system, production activity and risk-bearing can be divorced, each being carried out by the ones best qualified.

Under this complex situation, business organizations survive because of two major reasons : (1) the residual claimants of such organization are unrestricted in nature, and (2) there exists a sophisticated multifacted decision control mechanism.The two systems interact in such a way that the agency costs arising from the separation of ownership from control is minimized.

The shifting of risk has been made possible for the existence of the market for common stocks.Since each individual can now own a diversified portfolio of common stocks, each with a different set of risk attached, he can derive the benefit of a reduced aggregate risk through pooling.Thus, the shareholders advance wealth which is used to bond the payments promised to other contributors, who contracted to lend their service in exchange of fixed agreed return.

On the other hand, decision makers are no longer required to be residual claimants.They are selected purely by reference to their decision- making skills without regard to their capacity or willingness to share the business risk.

This separation of ownership from control entails two benefits : benefits of specialized risk-bearing and specialized decision skills.But the agents who are in controlling position may try to grab all these opportunities for their personal benefits.That is not possible.The situation would be such that benefits derived from specialised risk-bearing and specialised decision skills must be offset by agency cost arising from the conflict of interests between the decision makers and the residual claimants.The people at the helm of control cannot grab the whole pie.They are disciplined by internal and external forces, (Strong and Walker, 1986).According to Fama and Jensen [1983 (a), 1983 (b)], such agency cost is minimized by the complex hierarchical control mechanism.Under the system, *decision management* involving initiation and implementation is quite separate from *decision control* operated through ratification and monitoring.In complex organizations specific knowledge relevant to different decisions is spread over throughout the organization.As decision-making rights tend to be decentralized to those in possession of the relevant information, the mechanism that separates decision management from decision control helps mitigate the ensuing agency costs.Hence, the agency cost of separation of ownership from control is comparatively small.This is at the core of the survival of large-scale activities involving widely spread information and stupendous risks.

But what mechanism controls the decisions taken by the one who tops the hierarchy? Fama and Jensen [1983 (a)] suggest some mutually supportive

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mechanisms that bring the interests of the senior management into line with that of the shareholders.First, because of the existence of the managerial labour market the managers are ultimately penalized for their actions that run counter to the interests of their shareholders.Second, there is a natural process of monitoring from higher to lower levels of management.Monitoring also takes place from bottom to top.Lower managers perceive that they can gain by shirking, or stepping over less competent managers above them.Anyway, each manager has a stake in the performance of the managers above and below him and as a consequence, undertakes some amount of monitoring in both directions.Thirdly, rewards of top management are explicitly tied to the firm's share price performances.Fourthly, professional expert outsiders on the board of directors with the powers of access to inside information also impose some discipline on the top managers.Lastly, the process of outside takeover acts as a discipline of last resort in such cases.Let us illustrate a few cases where agency costs may originate and let us enquire the self-regulatory mechanism of minimizing such costs.

Agency Cost of Debt

Usually decision rules of reinvestment strategies are assumed to be independent of how the firm is financed.If this assumption is relaxed, the propounders of 'agency cost of debt' argue that conflict of interests between equityholders and debtholders may arise when the organization is incapable of committing in advance to a value-maximizing investment policy at the time of the issue of debt.Two major types of conflict may develop here.

First, the equityholders may be able to increase their own wealth at the expense of debtholders "by shifting the risk profile of the firm's assets in favour of riskier assets" (Jensen and Meckling, 1976).Secondly, the equityholders may be able to increase their own wealth at the expense of the debtholders by rejecting all projects having net present value less than the face value of the outstanding debt (Myers, 1977).The above statement does not speak of normal situations.But such a situation may develop in the following cases.

When the firm has debtholders, the equityholders may take value-reducing action for the following reasons.Here investment decisions have impact not only on the value of the firm, but they affect also equityholder's share in the value of the firm.This project may not only affect the size of the divisible surplus but also influence the equityholders' relative share in the surplus pool.

Questions may arise as to how the investment decision can affect the equityholders' relative share in the value of the firm.It may happen when the equityholders decide to invest in projects having greater dispersion of cash inflows and when they change their promises on debt repayments.

The situation is illustrated as follows : An investment is made at t_0 and t_1, return on investment is expected to be an uncertain R, the debt, both principal and interest, will be paid off at t_1 and the firm will be liquidated.Equityholders may make investments for Rs. 100, either in project

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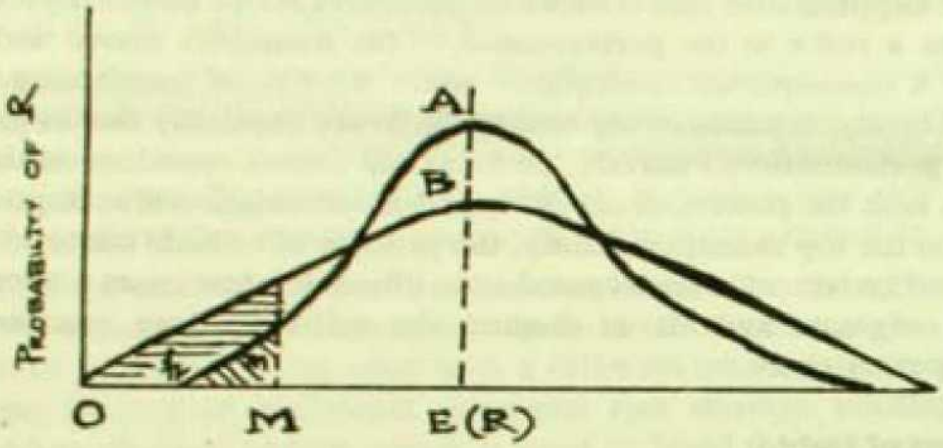
A or in Project B. The expected returns E (R) are the same in both the projects, the standard deviation of returns is lower for project A : $(R)_A < (R)_B$. The relation is shown in the following diagram.

PROBABILITY DISTRIBUTION OF RETURNS ON TWO MUTUALLY EXCLUSIVE PROJECTS A AND B



Returns from Investment at t_1

The equityholders are not concerned much when the projects constitute only a small fraction of their portfolio and the firm is without any debt.The market's expected rate of return E(i) is the same in both the cases.As both the expected cash flows and the expected rate of return are the same, values of both the projects will be same at t_0.The relation may be shown as below.

$$V_{AO} = \frac{E(R)}{1 + E(i)} = V_{BO}$$

At t_0 the equityholders may invite debt with an agreement to repay at t_1 principal with interest of Rs. M. Will the value of the debt vary with the alternative investments? The value of the debt depends on the return they expect from the firm.If the expected return from the investment (R) exceeds M, the debtholders get M, if return is less than M the firm becomes insolvent and the debtholders receive whatever cash flows result (i.e. R).

If project A is accepted, the probability that the debtholders will get less than M is the area m under the curve A in the above diagram and the probability that they get M is (1 - m). If project B is accepted, the probability that the debtholders receive less than M is the sum of the area *m* and area *h* (i.e. $m + h$) and the probability that they get M is $[1 - (m + h)]$ and the probability that they get M is $[1 - (m + h)]$. Hence, the project B has more probability of debt default than project A and less probability of debtholders receive their contracted payment, M. Hence, the market value of debt at t_0 will be greater if the equity shareholders accept project A (D_{AO}) than if they accept project B (D_{BO})

$$\text{Thus, } A(D_{AO}) > A(D_{BO})$$

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Value of the firm as a whole at t_0 is V_0 and it is indifferent as to whatever project is accepted. Again, the value of the firm is the sum of the value of equity (P_0) and debt (D_0), i.e.,

$$V_0 = P_0 + D_0$$

Hence, with the variation in the debt values with the projects, the value of equityholders' shares in the firm will vary. Algebraically, if $D_{A0} > D_{B0}$ and $V_{A0} = V_{B0}$, then $P_{A0} < P_{B0}$. Equityholders accept project B, since their wealth is greater with that project. They are not indifferent between the two projects as they were when there were no debts.

If the debtholders cannot anticipate these situations, the equityholders might transfer wealth at the cost of the other party by misguiding them. While issuing debts, i.e. receiving D_{A0}, equity holders may promise to invest in project A, but after collecting fund i.e. (D_{A0}) they may invest in project B. In this way the owners will increase their own wealth by

$$P_{B0} - P_{A0} = D_{A0} - D_{B0}$$

Thus, it is evident that equityholder's investment decision is influenced by the debt factor.

However, the decision makers take the advantage of the dispersion effect of returns from the projects. But they cannot take such decisions when the investment reduces the value of the firm (i.e. V_0) as a whole or decreases their share in such value. For instance, it may be a case where expected return from B might be less than that from A [i.e. E (R) < E(R)]. But that is not sufficient to neutralize the effect of B's dispersion on the equityholders' share in the return from investment. In such a case, the equityholders would take a value-reducing investment decision. They will invest in B in place of A. But the equityholders are to bear the costs ultimately, for the debt market will absorb the information and will price the debt at D_{B0}.

The situation may be otherwise. If there is no such dispersion effect, the equityholders may not take the project even it has a positive net present value. It is so because the owners think that the transfer of wealth from them to debtholders may exceed their share in the increased net present value.

But the crucial point is that equityholders investment policy to obtain wealth transfer is expected by the market. Consequently, anticipating in advance the wealth transfer, the debtholders evaluate the price of the debt accordingly. Thus, in fact, there is no wealth transfer. If the equityholders accept negative NPV projects rejecting positive NPV investments, they themselves bear the resultant reduction in firm value. This way the equityholders are restrained from taking such decision and the agency costs are mitigated.

Agency Cost of Different Classes of Debt

Through issuing additional debt the equityholders may intend to transfer wealth from the original debtholders. Such a process may create agency cost that decreases the value of the business. The additional debt may be of priority

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higher than that of original debt[6].If it means bankruptcy, the new debt gets paid off before the old debt.If the money received from new debtholders is distributed to the equityholders as dividend, the old debtholders will be worse off in bankruptcy when the net surplus available for distribution is not sufficient to redeem the old debt.

Even if the new debt is junior to old debt, the value of old debt may decrease.It happens when the fund collected from new debts is distributed as dividend and probability of bankruptcy increases.Once bankruptcy proceedings start, funds are used to pay liquidation expenses.It reduces firm value and the value of both old and new debts.

But the information on the likelihood of reordering of financial claims is absorbed in the market.In consequence, original debt issue price is reduced.Hence, on ultimate analysis, the manipulators bear the agency costs.Thus, the policy makers are disciplined to take necessary steps so that value-reducing actions would not be taken into account.

Role of Accounting in Minimizing Agency Costs

Contracts themselves cannot minimize agency costs.Parties are to determine first whether the contracts have been breached.It requires monitoring.Accounting provides information both in framing contract terms and in monitoring them.For instance, contracts often incorporate restrictions that performances of the parties will be evaluated in terms of certain accounting numbers.

In lending agreements between a firm and a bank, the latter may require the former to maintain interest coverage ratio to a certain minimum level.Now it is imperative to know whether accounting earnings are sufficient to meet the condition.

In executing bonus plans, formulas are based on accounting earnings. Information on accounting earnings is also indispensable for assessing profit-centre managers and cost-centre managers.External auditors as agents of the debt-holders investigate and report on how far the conditions of the contract of their client are fulfilled.Here the auditors act as monitoring agency.Again, statutory auditors' reported accounting earnings are often used as a basis for formulating bonus plans.

When firm's contracts are based on accounting data and agency costs are different with various contracts, the value of the firm or the amount of management compensation will vary according to the accounting procedures adopted.Only those contracts can survive which can minimize agency costs.It may be found that the accounting procedures used in enforcing these contracts are more efficient than other alternative procedures.In other words, if an accounting procedure is not efficient to reduce agency costs, then use of the procedure will decrease the firm value and the management compensation.Thus accountants as important agents play a vital role in establishing an important

6. In India such procedure is probibited.It is a hypothetical case.

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relation between the earnings from the involvement and the firm value.Hence, we may get an explanation about why the management prefer a specific accounting procedure to others.

Accounting reports are demanded for determining various terms of contracts and for monitoring the activities of the stewards.Accounting and auditing are necessary to restrict managers' or employees' ability to steal (Watts and Zimmerman, 1986). The above discourse may lead to the conclusion that accounting and auditing developed only out of the need of monitoring firm's contracts.But that does not provide a complete picture of the accounting world.Two hypotheses have developed to answer the related questions.Did accounting and auditing arise as monitoring devices for the firm's contract? Or, did they develop from the exigencies for investment and valuation decisions?The latter question is popularly known as information hypothesis. It asserts that investors are interested in the information on current and future cash flows and the market value of assets and liabilities of a firm. While the former hypothesis is evaluation-oriented, the latter is future-oriented.

Whether accounting developed as a monitoring device or as a source of information for investment is debatable.The two are mutually exclusive.If so, why do we concentrate on contracting hypothesis? It is necessary because it links between accounting procedures and the firm's cash flows under the contracting hypothesis.This link is consistent with EMH. On the basis of this link it is possible to predict why specific accounting procedures are used by firms.Researches on information hypothesis have advanced much, but a further endeavour is needed to link them consistently with EMH.

By definition, a firm is 'a nexus of (innumerable) contracts'. Of them, researchers in accounting have concentrated only on two : management compensation agreements and debt agreements.Researchers have investigated why management choose particular accounting procedures and what are the effects of procedure changes on stock prices (Watts and Zimmerman, 1986).

Appraisal

Theories may be either normative or descriptive; while the former may provide guidelines as to predict what will happen in future or how to proceed to achieve the desired goal in future, the latter can help us to explain what is done at present.We may begin from observations and then generalize them and formulate theories.Such theories are called descriptive.On the other hand, if we begin from a model and try to find out its counterpart in practice, then such way of building models or theories would be treated as normative.Whether this piece of literature is normative or descriptive in nature is debatable.

Principal-agent literature provides a conceptual underpinning for understanding accounting as the choice of an information system in an uncertain multi-person enviromment.But according to Kaplan (1983), it is hard to believe that " managers solve the complex maximizing problems associated with obtaining an equilibrium solution in the context of these models".Hence, the theories cannot be considered normative in nature.Contrarily, these models

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may be considerd descriptive since they provide a context in which it can be understood how decisions are made in an uncertain and multi-person world.

We should start from empirical phenomenon what we attempt to explain. For instance, we are to enquire what do auditors do ? What do managament do? Once we understand the phenomenon, we can formulate models that aim to explain the action we observe.But in principal-agency literature, the reverse order is followed.Such an approach may contribute to the science of multi-person decision theory, but they have very little to say about accounting and auditing (Kaplan, 1983).As these models are unrelated to phenomena, Michael Jensen (1983) calls them 'toy problems'.But that does not belittle the agency literature.

The principal advantage that we may derive from the literature is that knowledge of this theory helps us devise means so that Pareto optimal welfare situation can be achieved through motivating the individuals.

Theory of firm provides us insight into how, through the interplay of demand for and supply of various factors of production, the various agents in the market operate and come to an equilibrium situation.These factors are exogenous to the enterprise.But the theory does not explain the complexities within an organization which is in fact 'a nexus of contract'.Agency theory provides an insight into the way that the conflicting divergent objectives of the various agents reach an equilibrium position.Thus principal-agent literatue highlights how Pareto optimum welfare may be achieved when all the agents are motivated by self-interest. Hence, the theory of firm and the principal-agent literature are complemantary and not competing.

Moral hazards develop when agent's efforts can be observed only through imperfect surrogates of behaviour.Such situations arise from motivational problems and conflicts.It is very difficult to avoid the impacts of moral hazards in contracting process for the agents themselves are in conflict of morality and self interest.Again value judgements vary from person to person.However, in the long-run, the influence of moral-hazards will be disciplined through competition.

The situation of 'forcing contract' can develop only when the agent's efforts and payoffs can be observed.But in multi-person activities it is very difficult to observe such decision variables.Hence, whatever sophistication is introduced in the model, it is very difficult to trace its counterpart in reality.

Acceptance of a particular theory will be increased if the evidence is consistent only with the theory being tested.Interesting hypotheses from this theory were formulated, but alternative hypotheses were not grounded in the positive theory of agency (Kaplan, 1983).

Objective of obtaining a theory is that it will help explain a phenomenon and will predict well. Jensen (1983) does not claim that he will use the model that predicts best.But what is needed is that there should be direct evidence on the internal validity and consistency of the assumptions and structure of the model.But knowledge of the underlying structure of the

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model is indispensable for assessing the impact of alternative actions within the assumed structure.But meeting this condition in the accounting field is a very difficult task.

Moreover, the assumption of continuous maximizing behaviour of informed, rational managers, (which lies at the core of the theory) has neither been explicitly tested nor has such test been advocated.That apart, the role of innovation, discovery and learning by maximizing managers have not been considered here.

One of the major limitations of this type of accounting research is 'its inability to address issues that do not resolve around identifiable, market-based contracting relationships, or to analyze imbalances of power inherent in the social context of an organization (Fama, 1990).

The perfect rationality assumption may hold good in capitalist set up.But it does not hold good in labour surplus developing economy.Hence, the probability of minimizing agency cost of labour employment in developing countries is minimum.

Another basic assumption that agents act only to maximize their self-interests makes the theory politically and socially unacceptable.It is often argued that this assumption is logically sound and may be taken as given.But it is not so.For instance, if an elected representative supporting this theory argues that he acts to maximize his own utility rather than social welfare, he would not maximize his own utility.(Schroeder, 1987), as his argument is self-defeating.

Choice of accounting procedure is viewed in positive agency literature as part of the choice of organization form, a choice disciplined by competition.This research on inter- and intra-organizational behaviour promises to yield new and significant understanding of accounting (Demski, 1983).

Agency theory does represent an interesting direction for research and has potential of providing insights into organizational decision making and the use and choice of accounting methods.

Researches on positive agency theory have been able to establish links between accounting procedures and the firm's cash flow position.These links are consistent with EMH. Because of these links, predictions about accounting procedures which firms may choose become less difficult.

In the environment where people act only with self-interest, it is natural, the atmosphere in the firm will be full of conflicts.This way of analysis provides us insight about how such conflicts are automatically mitigated, and the agency cost is minimized.The theory explains how competition from within and from outside act as the force for survival of an organization.

The theory provides insight on how accounting procedures affect the firm's cash flows via political process and contracting process.Some groups may band together to cause the government to transfer wealth, as in farm subsidies in USA.The justification for these transfers, they may argue, is that they are made in the public interest.

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This approach explains that multiple methods of accounting for similar circumstances have developed from the desires of various individuals, like managers and shareholders, to minimize agency costs.It explains how regulations and political process influence the result of agency relationship.Regulation process is often affected by external pressure in the name of public interests.

The theory highlights that varying desires are the reasons for the diversity of acceptable accounting practices.For instance, large corporations are more susceptible to political scrutiny and subsequent wealth transfers.That is why, large companies choose accounting alternatives that minimize net income.On the contrary, small companies have incentive to show greater net income.The motive is to increase borrowing potential and enhance availability of capital.Thus, practices vary with the change in the self-interests of the agents (Watts and Zimmerman, 1987).

In positive agency literature, it appears that accounting researchers are attempting to explain the actual behaviour of managers, investors and auditors.But the steps that the managers or accountants may take which may increase the earnings of the firm, but which the manager is unwilling to take, are not considered in the models (Kaplan, 1983).

According to Schroeder (1987), agency theory develops from the need of a comprehensive accounting theory with the basic objective of explaining the development of accounting theories and describing the financial statements from which accounting statements originate and accounting standards are formulated.This way of analysis helps in explaining why a diversity of accounting practices exists.The advocates of the theory opine that a uniform framework of accounting theory cannot be developed because of the diverse interests involved in financial reporting.

Conclusion

The positive theory of agency, with its emphasis on studying and understanding the divergence of interest of agents, both internal and external to the firm, is an important addition to accounting researches.It is useful for understanding the action of economic agents in the solution of accounting procedures.But the advocates of the theory overstate the benefits that can be expected from following this approach.

Agency theory cannot be used directly to solve the problems of individuals associated with accounting activities.Knowledge of the theory cannot provide alternative accounting procedures.But it assists the researchers in identifying the motives of the concerned individuals.Such motives are the driving force of the economic agents.Once the motives are identified, researchers are in a better position to explain the causes behind the behaviour patterns of the principals and the agents.Being equipped with greater insight, the investigators are in a better position to explain the existing practices, and in settling the terms of contract with other agencies.It empowers the accounting policy framers with new weapons for adopting the best alternative so that conflicts among the agents with divergent objectives will be minimized.

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Both principal-agent literature and positive agency theory " have issued a challenge to us to move forward in our thought, to model explicitly the demand for our product.This pushes us beyond traditional confines" (Demski 1983).

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Behavioural Aspects of Accounting

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Introduction

Behavioural accounting identifies the reason for different perceptions of specific accounting information.It answers the question of how individuals or groups process and react to accounting information and why they make certain decisions.The overall objective of behavioural accounting is to improve decisions by giving an insight into the decision process.Behavioural accounting covers a wide range of utilities, from the effect of accounting information on the behaviour of brokers in the securities market to the effects on individual financial statement users.

Accounting is a human activity and in order to understand better the phenomenon of accountancy we cannot ignore the behavioural dimension.In general, behavioural accounting is a progeny of the interaction of accounting and behavioural science.It represents the application of the method and outlook of behavioural science to accounting problems.The objective of behavioural accounting is to understand, explain and predict human behaviour in accounting situations and contexts. Because of this objective, behavioural accounting includes both more and less than what has been traditionally included under the accounting and behavioural science disciplines, separately.In this respect, behavioural accounting does not completely fall into either of the parent disciplines, but has emerged as a truly inter and multidisciplinary area that is not a confined subdiscipline of either accounting or behavioural science.

The behavioural hypothesis of accounting on the whole emphasises a communication-decision orientation of accounting practices.The focus is on the relevance of accounting information being communicated to decision makers and the behaviour of different individuals or groups as a result of the presentation of such accounting information.

A general example of behavioural aspect of accounting information is the choice of an investment decision.Investment alternatives are analysed by the decision maker from accounting information relating to these investment proposals.The accounting information might give a risk- return combination for each alternative.He is usually given an option to choose one or several of the alternatives for final investment based on the information made available.Assume two projects A and B are feasible and there is a constraint to choose only one of these projects.The accounting information for these projects might give the following risk- return combination.

Project A : 40% return & risk probability .35;
Project B : 60% return & risk probability .80.

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An individual's choice of investment among these projects would depend on his perception of risk and return.This specific information might lead to different optimal results for different personalities.Decision processes as such are subjective for each individual and are unique to each decision maker.Assume further that the decision is to be taken by a team of two project directors.Each one might come to a different conclusion based on his own decision process.Therefore, aggregations and generalisations regarding investment behaviour might pose great difficulties.Finally, the establishment of a right decision can be made possible only after an analysis of the behavioural aspects (risk-return perception in this instance) of this accounting information.

There are also other behavioural relationships relevant to individual decision making in an accounting context.For example, individuals have been found to have limited abilities to process information in a complex business setting.To overcome this complexity they are found to simplify the information and reduce the uncertainty as they perceive it.This also has its limitation of giving undue weightage to an individual's perception.

Increasing the quantity of accounting information might also inhibit the decision process of individuals.To overcome this problem, decision makers might also rely more heavily on a few major factors and ignore the other information even though such ignored information is considered vital by some.The relative importance of information thus will vary between individuals.There is also a tendency for decision makers to give more weightage to related information such as determining the future profitability of a venture through the current sales trend.

Behavioural aspects of accounting also differ in relation to the feedback effects of accounting information on management decisions, the economic and social consequences of alternative accounting procedures, and the interaction among accounting, organisations and society.

The behavioural aspects of accounting can also be established on the basis of users of accounting information.There are basically three types of accounting information users, the first type is the decision maker in the organisation; the second type is the accountant or auditor who prepares the accounting information and reports, and the third type is the outsider interested in the organistion like shareholder, creditor, government, regulatory body, etc.

Behavioural Implications of Accounting

Accounting figures have a far and wide implication on the decision making process.Here an illustration of the most obvious behavioural implication of accounting information is given.A loss of Rs. 10,000 on the sale of tetra pack drinks due to competition from bottled drinks could have many behavioural implications.The implications would depend upon the user of this piece of accounting information.The company management could foresee a stiff competition for the product.The competitors would have high hopes that the tetra pack consumers might shift to their own brand.The accountant would feel the advantage of less tax burden because of this loss.The investors might

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react sharply by lowering the market price of the company stock.

A particular accounting information thus leads to varied interpretations by the several users of the same information.Each user views it from his own angle and this can also be said to be influenced by the behavioural perceptions of the individual decision makers.Again, a corollary of this hypothesis can be derived to show that even with the change of accounting system or procedure, the individual's decision making might largely depend on his own perceptions than on the effect of change in the accounting system or procedure.

Behavioural implications of accounting can be explained from four dimensions namely, two types of functional fixation, lack of feedback, and little difference in outcome.Psychologists have found that functional fixation influences decision-making by individuals.This implies that a person attaches a meaning to a particular aspect from his viewpoint and is unable to see alternative meanings or uses.Since he is fixed to this type of reasoning, even if he is placed in a different situation or time frame, his implied reasoning would turn out to be the same.

This functional fixation can take the form of either endogenous or exogenous functional fixation.Endogenous functional fixation happens to an individual because of his own perceptions.It occurs within the mind of the decision maker.His reasoning and intuition makes him depend on and interpret the accounting information in a particular way.Exogenous functional fixation is influenced by the environment and hence the decision maker might give more importance to this environmental influence than his own perception.Here, though he might reason out that one accounting information might have alternative implications, his immediate environment's outlook might overcome his own views.

The other two dimensions — lack of feedback and little difference in outcome-also explain the implication of accounting information for an individual.Lack of feedback obviously does not indicate whether the individual's perception is right or wrong.Hence, he is under the assumption that there is nothing wrong with his view of a situation and continues to bahave in a similar manner.When the results of alternative solutions are the same, the user of the accounting information would unquestionably ignore the difference and continue with his own previous perceptions.

To illustrate these dimensions of accounting information, a change in the accounting procedure and its implications on a manager (decision maker) is given below.

A project consultancy firm has a standard procedure of charging its customers 150% of the cost of the project, where the costs are strictly based on direct costing method.The firm decides to increase the profit margin by changing the method of determining the cost of the project by including the overheads to the project cost.The top management might now indicate a 50% margin on the cost of project and might want the branch managers to make their individual decision from among these two alternative methods.Then,

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under the new measurement technique, the manager should charge to his customers a rate of 50% and not 150%.If there is endogenous functional fixation, the manager might not understand this new concept of 'cost' and might still insist on 150%; project price (based on direct and overhead costs) for his customers.On the other hand, even if he understands the nature of costs in the organisational context, he might still fix a 150% margin because he might fear that his CEO would not understand the difference and might blame him for low profit margin.In both the cases, the implication for the decision-making manager on this accounting information would be a higher quantitative margin rate than the actual profit margin.

The other dimensions of behavioural implications can also be explained from this illustration.The lack of interest shown by the top management on the decision of branch managers might prolong this behaviour and so also, if the profit margin difference between the two alternatives is so insignificant that it does not make any marginal difference in the profit earning position of the branches.These two dimensions of lack of feedback and small difference in outcome also significantly affect the implications of accounting information to the users.

Yuji Ijiri gives a simple example to explain these four dimensions taking the instance of brand loyalty of customers.People might be willing to go in for a particular brand of scent irrespective of whether the quantum of scent in a bottle had been decreased from 12 ounces to 11 ounces without effective price reduction.This behaviour of failing to note the reduction in the quantum, would indicate lack of feedback and if they think that the reduction in quantity is insignificant and buy the same brand, this might be due to their perception of little difference in outcome.If they buy the scent because they just had the habit of buying only that brand previously, this is called as endogenous functional fixation.However, inspite of noting the difference, if they presume that their social status depends on that particular brand and therefore they purchase the same brand, it would indicate exogenous functional fixation.

These dimensions explain why different users stick to their own perceptions and views.The lack of holistic approach to decisions would thus lead to such explanations of behavioural implications of accounting.However, it is highly unlikely that such effects will last for a relatively long period of time because of the adaptive mechanism of the decision makers.How long the effect will last will depend upon the degree of domination as well as the adaptation need of the decision makers.

These aspects are sure to vary from individual to individual.Individuals often can change their perceptions and learn to face a problem from alternative viewpoints.But, when the environment is too complicated and too ill-structured to be handled in a straight-forward manner, as is often the case in business decisions, a particular accounting system will have lasting effect upon the decision maker's behaviour.In these instances, a holistic outlook might not be feasible and specific narrowed down goals would be the guiding posts for individual decision makers.Further complication is that the decision makers

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do not rely on accounting information alone to make their final business decisions.A different combination of accounting and non-accounting information might be preferred by different types of business decision makers.

Research in Behavioural Accounting

Research in behavioural accounting can be discussed under three headings viz., a) Accounting measurement and variation in decisions; b) Individual's perceptions and their impact on accounting information-based decisions; and c) Human information processing effect on accounting information-based decisions.

a) Accounting Measurement and Variations

Accounting measurement determines the reliability and validity of information.The measurement rules bring about uniformity in accounting practice and unless the variations in accounting measurement are located and curtailed, use of accounting information could only be a decorative tool rather than a decision tool.Again, the accounting measurement should allow flexibility to meet changing needs and situations.No rigid system of measurement would be helpful to the business organisations to make their decisions.Given the complexity and uncertainty of the business decision environment, it is all the more necessary that the accounting measurement be flexible to suit the requirements.

The major problem that had been considered by researchers in this aspect relates to the valuation of inventory.Studies by Bonini has established that managers do get influenced by the method of inventory valuation when they make their decisions.Contradictory results have been established by other researchers such as Dykeman and Bruns who argue that no relationship exists between inventory valuation method and business decisions.

Profit evaluation is also influenced by the accounting method.The choice of depreciation method, the split up of fixed and variable cost concepts, the differentiation of business income and business related income influence the accounting profit figures.Similarly, a change in the accounting policy of method of valuation of buildings and assets affects the profits to a great extent.These methods of accounting by influencing the accounting figures might also influence the decision process of the managers.Unless managers are aware of the method of accounting and their impact on the accounting figures, they might be lured to make a wrong decision.

Current accounting research applies the deductive process to identify the behavioural influence on accounting.The deductive method of reasoning in accounting is the process of starting with objectives and deriving from these logical principles that provide the bases for concrete or practical applications.

Research of this type also examines the types of financial statements presented in formal reports and relates them to the objectives of potential users of such information. First, the balance sheet was thought to be the most useful form of accounting measurement since it gave the creditors the detailed

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information.Subsequently, the income statement was considered more relevant since the shareholders were able to ascertain the profitability of their ventures.Now, funds and cash flow statements are considered to be more appropriate since they show the actual inflows and outflows of capital.The latest trend in accounting measurement is the price level adjusted financial information considered most appropriate for the external users of accounting information.

Research conducted by McCaslin and Stanga assesses the related qualities of useful accounting information.Gul had conducted an experiment on the relationship between age, experience, cognitive styles and the accountant's decision confidence.Aranya and Ferris have analysed the antecedents and outcomes of organisational-professional conflict of accountants working in government, industry and the auditing profession.Other researchers who have ventured in this field are Kaplan, Dermer, Revsine etc.

b) Individual's Perception in Decision Making

Individual's perception of a situation is influenced by either one or more of the following factors : (i) personality, (ii) cultural identity, and (iii) Demographic characteristics.Personality is the attitude and beliefs of that individual (Estes and Reames).Some dimensions of personality would be dogmatism (Qamar Hasan), authoritarianism, tolerance to ambiguity (Gul), risk attitude (Atkinson, Dudycha, Linda & Naylor, Friedman), introversion-extroversion (Vernon, Alport, Neymann, and Kohlstedt), and ascendence-submission (Alport).Cultural identity relates to expression of norms, values and customs that reflect the behavioural characteristics (Weir).The demographic characteristics are age (Kirchner), experience (Solivic, Taylor, Ashton, Weber), sex, marital status, and education.

An illustration of research of this type is the study by Driver and Mock, where focus is on the individual and the effect of such psychological characteristics as personality and cognitive traits on his decision making-process.Subsequently group/team characteristics as well as organisational and social characteristics have been examined by researchers like Flamholtz, Ronen and Livingston, Hopwood, etc.

Lee and Tweedie have studied the methods used by several interested parties such as private shareholders, institutional investors, etc., on accounting information-based decisions.Arnold and Moizer have conducted a survey to identify the method used by UK investment analysts to appraise investments of ordinary shares.

c) Human Information Processing and Accounting Decisions

Many of the studies on human information processing in general, and on accounting, in particular, focus on the information set and how the selection and presentation of the information affect the judgement, prediction or decision of individuals.Here, the testing is specifically on the cognitive ability of the decision makers and how well the accounting information helps in the augmentation of this information processing ability.

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The peculiar characteristics of accounting information which influence the cognitive ability of the decision makers are : (i) accounting information is presented in either ratio formats, graphs, probabilities or ranges; (ii) accounting information has mathematical properties such as sub-classification of assets and liabilities and statistical properties like the relationship between profits and tax; (iii) reliability and bias due to unique concepts and accounting measurements; (iv) different methods of presentation such as the format of accounting information i.e., classification of costs, absorption of costs, accrual concept, cash concept, etc., and (v) the context in which the specific accounting information is used, e.g., the type of organisation.

The cognitive abilities that have been studied include reasoning abilities, sensitivity to problems, creativity, originality, analytic ability, synthesis, orientation, prediction, elaboration, ordering, ingenuity, flexibility, fluency, memory abilities, and intellectuality.

An example of research work in this area of behavioural accounting is the effects of information and cognitive processes on decision making by Rogers and House.This study examines the efficacy of a two-state cognitive model of decision making within the context of loan decisions.Other researchers who have made similar contributions are Payne, Braunstein, Carrol and Dillard.

Research Approaches to Behavioural Accounting

Four approaches to human information processing have received sufficient attention in the accounting literature.They are the organisation theory approach, lens model, the probabilistic judgment approach and the cognitive style approach.

a) Organisation Theory Approach

The use of organisation theory became most prominent in the development of the contingency theories of management accounting.The contingency theory of organisations can be traced to the pioneering work of Burns and Stalker, and Wood.Accounting researchers took up this approach to explain observed variations in the operation of accounting systems.This led to the identification of different control strategies that were appropriate in different kinds of organisations.

The use of budgets as a standard against which actual performance can be monitored is a widespread business practice.Research has been undertaken to discover a method of utilising budgets in performance evaluation without causing negative consequences.It has also been noted that there is a tendency on the part of managers evaluated by the budgetary control system to bias the estimates they entered into the system so as to gain some personal benefits.This was explained by the rational behaviour of the managers.

The theme of performance evaluation was taken up by Hopwood who identified different styles in which managers could use accounting information and their impact upon individual behaviour and implicitly upon organisational performance.Individual characteristics and organisational climate were also

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considered to be significant influences for different uses of accounting information.

An organisational level of analysis has also often been adopted by those concerned with applying systems theory.It has long been recognised that accounting systems serve a control function within the organisation, viewed either from the standpoint of management or from a holistic or systems view of the organisation.A wide variety of research such as responsibility accounting, the application of cybernetics, or general systems theoretic models have been done using this systems approach to organisational theory.

b) Lens Model Approach

One way of viewing the decisions people make and how they go about making them is through the Lens Model of Brunswick.The model assumes the decision process to be composed of three essential elements, namely, a) the basic information in a decision situation, b) the actual decision made by the decision maker, and c) the optional or correct decision which should have been made in that specific situation.A relationship is established between the correct decision and the information and between the information and actual decision.

The lens model is used by researchers to study the relationship between the environmental criteria and the information set, between the information set and subject responses, and between subject responses and the environmental criteria.This model is of particular importance to accounting because of the emphasis on the information set.Of particular significnce is the ability to study the impact of the information set on such variables as the predictability of the information, the accuracy of the subject responses, and the effect of the information set on the decision process.

c) Probabilistic Judgment Approach

In studies of probabilistic judgment, information is evaluated in a sequential process, whereas in the lens model the information set is available at one time.The subjects are requested to generate a probability distribution for each of a given number of variables.This distribution is based on all of the information available to the subjects at a point of time.The subjects are then given revised or new information and requested to provide revised subjective probability distributions.These revised probabilities are then compared with the optimum probability distributions generated with the Bayes' Theorem.Some of the significant research works in accounting using this approach include research on materiality, the effect of aggregation compared with disaggregated data, the effect of presenting alternative information systems compared with presenting both alternatives and research on the consistency of subjective probability assessments.

d) Cognitive Approach

The basic background of this theory consists of the notion that the human being tries to establish internal harmony, consistency or congruity among his opinions, attitudes, knowledge and values.Basically, there seems to be an attempt towards consonance among cognitions.

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Cognitive style approaches proposed by psychologists are used in studies of the relationships between the subject response or human information processing and the decision or action taken based on the given information set.

Studies of cognitive style have divided decision approaches into two types, namely, heuristic and analytic.The heuristic approach refers to an intuitive mannner of arriving at a decision and is characterised by a trial and error method of satisfying a goal.The analytic approach is a systematic approach to the problem and is characterised by the use of mathematical analysis and an optimising goal.One of the objectives of cognitive style research is to help design information systems and financial reporting formats that are most useful for different styles of decision making.

Relevance of Behavioural Accounting Research

Behavioural accounting research would certainly help in establishing the hidden pattern of decision makers.This would bring out the way in which accounting information is viewed by experts such as financial analysts, auditors, brokers, tax consultants and investors.Some of the objectives of studying individual decision making in an accounting context include :

1. a possible improvement in the ability of financial information to portray accurately the real events or objects;
2. an understanding of how the amount, type and format of financial accounting information affect the judgments or predictions of decision makers;
3. an understanding of the ability of the decision maker to respond accurately to a perception of an environment; and
4. an understanding of how individuals deal with complexity in decision making and an understanding of the effect of the different styles of decision making on how information is used.

Conclusion

Behavioural accounting is gaining importance and a place of prominence in accounting research.Researchers have developed models to portray behavioural implications of accounting data-based decisions.In Indian context, there is a vast scope for research into the behavioural aspects of accounting.

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Concept of Triple - Entry Bookkeeping

*Ananda Mohan Pal**

Introduction

The concept of triple-entry is the brain-child of Yuji Ijiri**.The idea of triple-entry is not just triple recording of every transaction.It is very dynamic and involves a three dimensional measure of economic events.What are those third dimensional information and how much are they needed by the users of accounting information ? The burning question that may immediately follow is what the proposed system of triple-entry would be like.In this paper an attempt has been made to answer these relevant questions, to elucidate the theory of triple-entry and to chalk-out a framework for practice of triple-entry.

Is There a Need for Triple-Entry ?

In 1994 the accounting world celebrated the fifth centenary of Luca Pacioli's landmark publication on double-entry "Summa de Arithmetica, Geometrica, Proportioni et Proportionalita".However, the practice of double-entry bookkeeping appears to have existed as early as 1340 in Genoa (Peragallo, 1938 Abs [1]).The nineteenth century mathematician Arthur Cayley called double-entry "in fact like Euclid's theory of ratio an absolutely perfect one" (1894, Preface).Centuries have passed, but "the basic double-entry scheme of bookkeeping has remained unchanged. Considering the enormous changes in economic systems during all these years the stability of the double-entry system is truly astonishing.A question that naturally arises is : "..... does the present double-entry method uniquely satisfy the requirements of an accounting system?" (Ijiri, 1975, p-177).

In this era of growing sophistication users of accounting information are increasingly interested in knowing not only the income during the accounting year but also the rate of earning of the business on weekly or even on daily basis.Moreover, the rate of change in the rate of earning is required to be closely scrutinised for understanding the rate of dynamism attained by the business.Accounting "measures must report not only rates of activity, but rates of change in rates of activity" (Elliot, 1991, p-6). Nowadays, financial reports contain not only statements of income but also explanation for changes in income from period to period. "But such explanations require the accountant to engage in special analyses, and are not a natural result of systematic bookkeeping designed to account for income changes". (Ijiri, 1987, p-25).

We may look centuries back.Before the introduction of double-entry, incomes were measured by accounting for changes in wealth.Businessmen of those days, we may imagine, might have been interested in knowing the reasons behind the changes in wealth.But until income accounts were linked to the wealth statements under double-entry bookkeeping, explanation for changes

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** There is already a rudimentary triple-entry in national accounting through the identity : National income = National product = National expenditure [Donleavy, 1991, p-16]

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in wealth could not have been made available from the system of bookkeeping. It is the double-entry bookkeeping system that made it possible to account for wealth changes systematically based on recording of income accounts.But the income concept merely refers to the fact that the wealth of an entreprise was increased by the indicated amount as a result of its operation during a given period. It cannot report the ability of the enterprise to keep generating income at the given rate.A business enterprise is subject to various internal and external forces that collectively determine how income changes from one period to the next. If accounting of these forces can be introduced as the third layer of accounting system to explain factors that are judged to be responsible for changes in the earning rate, it hopefuly will direct management's attention and sensitivity to factors at a level deeper than the level of wealth and income that has been traditionally dealt with by double-entry bookkeeping (Ijiri, 1986, P-745). To construct a bookkeeping system to account for income changes systematically based on accounting of these forces, Yuji Ijiri's pioneer work resulted in the logical extension of extant double-entry to the triple-entry system.We may start with analyses of some basic properties of double-entry.

Duality in Double-Entry

In the Summa, Pacioli describes commercial accounting practice in such minute detail that even a novice can understand and apply it; yet he never ceases to emphasize the duality, integrating tendencies, and balancing features underlying double-entry procedure.Littleton points out that double-entry bookkeeping seems to hinge on duality of entries and the equilibrium of debits and credits.Three kinds of duality are evident : of books, between journal and ledger; of account form, with debit and credit pages opposite; and in double posting of each transaction.Since trade rests on exchange of goods and services, this dual aspect is not just a formality but corresponds to a basic reciprocity between buyers and sellers, givers and receivers, debtors and creditors (Chatfield, 1977, P-35).

The double-entry bookkeeping is often taught by starting with the fundamental equation :

Assets = Equities

Here duality is evident in double classification of the same set of resources, one based on the type of the assets and the other based on the claims upon them.Another interpretation of duality is evident in recording transactions involving two different resources, as debit inventories and credit cash.Here the value of increment in inventories (Debit) is set equal to the value of decrement in cash (Credit). Here the equality of dual aspects can be presented as :

Increment = Decrement

Ijiri pointed out these two entirely different reasons for debit being equal to credit.The duality of assets and equities and the duality of increment and decrement and the resultant equality of debit and credit are shown in matrix form in Table - 1.

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Table 1 : Duality Matrix

Duality → ↓ Increment = Decreement	Assets	=	Equities	Debit	=	Credit
	AI Debit		EI Credit	AI		EI
	AD Credit		ED Debit	ED		AD
	AI - AD	=	EI - ED	AI + ED	=	EI + AD

Where AI = Increments in Assets
EI = Increments in Equities
AD = Decrements in Assets, and
ED = Decrements in Equities

Introduction of the Concept of Negative Number in Double-Entry Bookkeeping.

Ijiri prefers the dichotomy of wealth and capital to that of assets and equities.Accordingly, he expresses the double-entry equation as (Wealth = Capital), where wealth is meant to represent the assets less external liabilities.Once we base on the assumption that wealth equals capital, it is then possible to devise a bookkeeping system in which all changes in wealth are recorded on one side (debit) and all changes in capital are recorded on the other side (credit) of a journal entry (Ijiri 1982, P-7). The novelty of this approach is the introduction of negative numbers in the system.For decrement in wealth, there will be no credit, there will be a negative debit instead.Transactions affecting wealth accounts alone will involve no credit entry. The following table (Table-2) may help understand the modified view of duality :

Table 2. Matrix Showing Ijiri's Interpretation of Duality

Duality → ↓ Increment = Decrement	Debit	=	Credit
	Wealth	=	Capital
	WI		CI
	- WD		- CD
	WI - WD	=	CI - CD

Where, WI = Increment in wealth,
CI = Increment in Capital,
WD = Decrement in Wealth and
CD = Decrement in Capital,

Analysis of Tables 1 and 2 pinpoints the differences between the popular notion of double-entry and Ijiri's focus on the duality aspects of double-entry. In Table 1 the duality of debit and credit and the duality of assets and equities have not the one to one correspondence.But in Table 2, wealth being debit and capital being credit, the duality of debit and credit has perfect correspondence with the duality of wealth and capital, and both have, therefore been shown in a single matrix. This is important to note here because the subsequent development of triple-entry is based on this interpretation of duality and this model of recording double-entry.

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Triple-Entry : A Logical Extension of Double-Entry

With this change in interpretation of duality the ground is now prepared for establishing the logic of introducing the third dimension in accounting system.Wealth accounts which represent financial status of an enterprise may be considered equivalent to stock accounts, and capital accounts summarising changes in wealth in the past may be considered a flow account.According to Ijiri, then, the double-entry equation takes the following form :

$$\text{Stock} = \text{Flow (accumulated)}^*$$

It may be interpreted as stock of wealth being fully accounted for by the flow of capital.If the periodicity concept is introduced, the equation can be revised as :

$$\text{Stock}_n = \text{Flow}_n$$

where, change in stock in period 'n' is an observed phenomenon and the flow during the same period explains the reasons for such change.The quintessence of double-entry lies in the integration of flow accounts with stock accounts (Ijiri, 1986, P-746). If we again replace the term 'stock' by 'wealth' and flow' by 'income', the equation may be rewritten as :

$$\text{Wealth}_n = \text{Income}_n$$

This implies that income during 'n' period of time provides explanation as to the changes in wealth in that period.If we observe the difference between single-entry and double-entry from the standpoint of dimensions of accounting it will carry us to the logical possibility of triple-entry. In single-entry only one dimension, i.e. wealth dimension of economic event is enquired. The double-entry system provides us two dimensions of economic events, wealth and income.The basic feature of the second dimension is that it explains the reasons for changes in the first dimension, i.e. wealth.If we want to analyse further these reasons for changes minutely, we require another dimension. This third dimension will be engrossed in explaining the reasons for changes in the second dimension.Thus the third dimensional accounts help in explaining the reasons for changes in income in the same manner as income accounts asist in explaining the reasons for changes in wealth.Thus it appears that three dimensional accounting is really an extension of the theory of two dimensional accounting.In this way, it may be claimed that triple-entry has its root in the double-entry system of bookkeeping.

Triple-Entry Model : Theory and Practice

The extant double-entry is not capable of reflecting the mobility of a business in a meaningful way.The recording and reporting of the rate of activity of a business and of factors responsible for the change in the rate of activities, it is expected, will provide information needs of this ever changing economic world.It will inject dynamism into the presentation of financial reports.But we are in need of a new mechanism that can incorporate the idea.Ijiri has made a breakthrough in this direction.In his model of triple-entry bookkeeping

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* Matter in the bracket has been added by the author.

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he suggests momentum accounting for measuring the rate of activities and force accounting for keeping track of the factors contributing to the changes in the rate of activities.Ther terms 'momentum' and 'force' are basically used in Newtonian physics and are not used much in the accounting world.But if we are to emphasise the study of mobility or growth of an economic unit, we are to enquire into the resemblance of such changes, rates of changes and associated ideas in the physical science where movement of physical objects is examined. Hence, let us have an idea of the basics of Newtonian physics on certain relevant terms before going into the details of Ijiri's model of triple-entry.

Some Terms of Physical Science

In physics three major concepts that are used for describing motion of an object are 'position' 'velocity' and 'acceleration'. 'Velocity' and 'acceleration' together with mass of the object determine 'momentum' and 'force'. 'Force' is a concept abstracted from the motion of objects and it plays a central role in Newtonian physics.Here we define the terms from elementary physics.

1. Displacement (S) : The displacement of a moving body in a particular direction during a certain interval of time is defined as its change of position in that interval.

2. Speed : The speed of a moving body is defined as the length of path actually traversed by it per unit of time.

3. Velocity (V) : The velocity of a moving body is defined as its rate of displacement. It can also be defined as the change of position of a moving body in a definite direction per unit of time.

4. Acceleration (f) : The acceleration of a moving body is defined as rate of change of velocity.Symbolically,

$$f = dv/dt$$ where, 't' is Unit of time.

5. Mass (m) : The mass is the quantity of matter in a body.

6. Momentum (p) : The momentum of a body is defined as the product of its mass (m) and its velocity (V). Employing the symbol of 'p' for momentum,

$$p = mv$$

7. Force (P) : The force is that which changes or tends to change the state of rest or of uniform motion of a body along a straight line. Symbolically,

$$P \propto mf$$

or, $$P = kmf$$ [k is the constant]

8. Impulse (J) : The change in momentum of a body equals the impulse of the force acting upon it. Symbolically,

$$J = mv_2 - mv_1$$

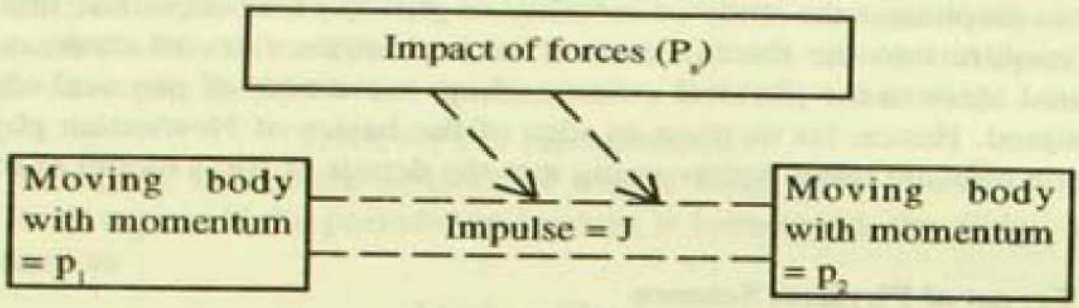
$$= p_2 - p_1$$

[where subscripts 1 and 2 refer to periods.]

Diagramatically, the relationship between momentum, impulse and force may be shown as below :

Diagram 1

Relation between Momentum, Impulse and Force



Application of the Terms in the Theory of Triple Entry :

It is a humble attempt to inject the ideas of physical science in the discipline of accounting.But if we expect exact replication of scientific terms in the accounting field that would be obviously frustrating.It may be relevant in this connection to quote Ijiri. He states,

"The analogy with Newtonaian mechanics should, however, be pursued only to obtain some valuable insights into how the triple-entry bookkeeping framework should be developed.A wholesale translation without regard to its applicability to accounting is too dangerous, since after all, physics and accounting are two different fields of endeavour (Ijiri, 1986, p - 748).

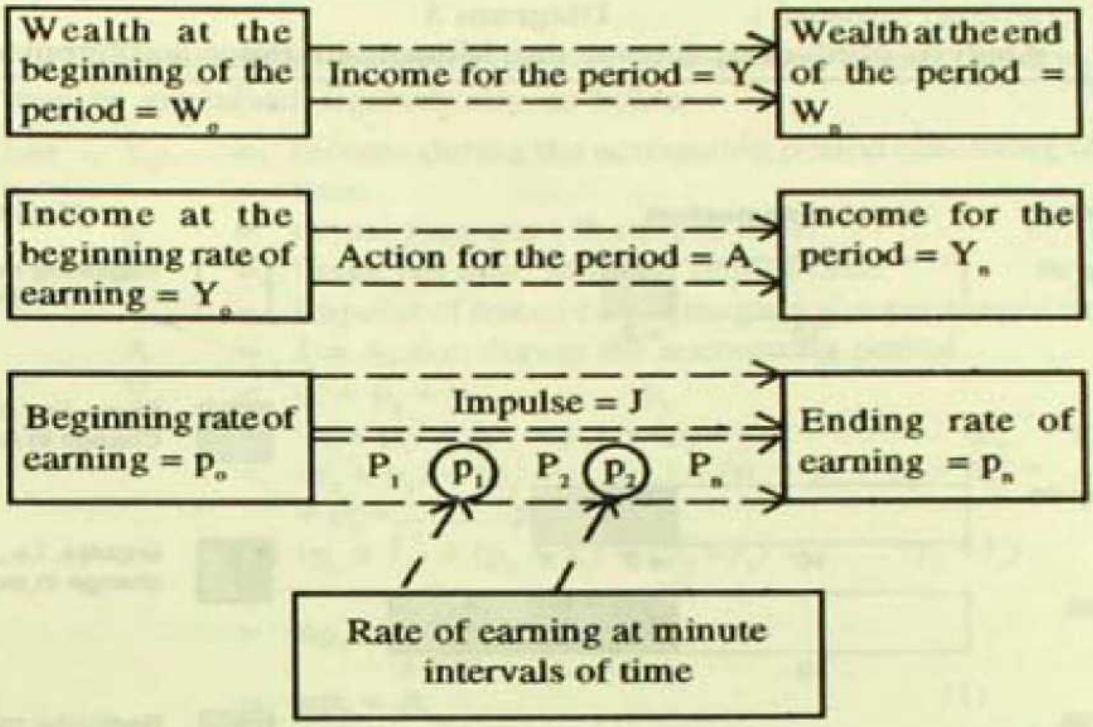
Let us try to analyse the counterparts of these ideas in accounting.Momentum may be considered the income generating ability of the business. A running business will continue to receive some orders in a given unit of time even if it stops exerting efforts for procuring orders.This can be compared to momentum of a moving object at a point of time when no additional force is employed upon it. Due to friction this momentum will come to a standstill after some time. In business situation also, a running business employing zero force will continually lose the rate of earning per unit of time.To distinguish earning rate per unit of time from income during a period of time, the term 'momentum' is borrowed from physics.In business parlance, momentum may gradually decline for friction in internal and external environment. If we assume a frictionless environment, the momentum once attained will be maintained over time.As aceleration measures the rate of change in velocity, in business situation, 'force' measures the rate of change in the rate of earning. In fact, 'force' represents the rate of change at the smallest time span. When we want to measure the rate of change over a longer period of time, we may introduce the concept of impulse which may be used to represent a measure of the total change in rate of earning. If we try to study the change in total earning and not the earning rate, we are to inject the idea of 'action'*

N.b. : * In mechanics there does not seem to be any concept that specifically refers to the realisation of impulse.The term 'action' has been chosen here since it describes the managerial aspect of the relationship with wealth and income in the most concise manner although, unfortunately the term has already been used in mechanics to designate another totally different concept. (Ijiri,1986, p- 751)

which aims to measure the total change in total earning.Relations among these terms are shown below :

Diagram 2

Relationship among Wealth, Income, Action and Impulse



P_1, P_2,..... P_n are forces contributing to changes in rate of earning in minute intervals of time. Impulse measures the total changes in rate of earnings.Action measures the total changes in total income.Income measures the total changes in total wealth.

The meaning of some terms in physical science and in accounting may be shown side by side in the following table :

Table - 3. Some Terms and Their Meanings in Physical Science and Accounting

Terms	Meaning in Physical Science	Meaning in Accounting
Mass	Quantity of matter in a body	Capital/Initial investment
Velocity	Rate of displacement	Rate of return
Acceleration	Rate of change of velocity	Rate of change in rate of return
Momentum	Mass x Velocity	Capital x Rate of return = Rate of earning
Force	That changes or tends to change the state of rest or of uniform motion of a body along a straight line	Factors responsible for changes in momentum and measure of rate of change in momentum.
Impulse	Ending momentum less beginning momentum	Measure of total change in momentum.
Action	Simply stands for force	Measure of total change in total income

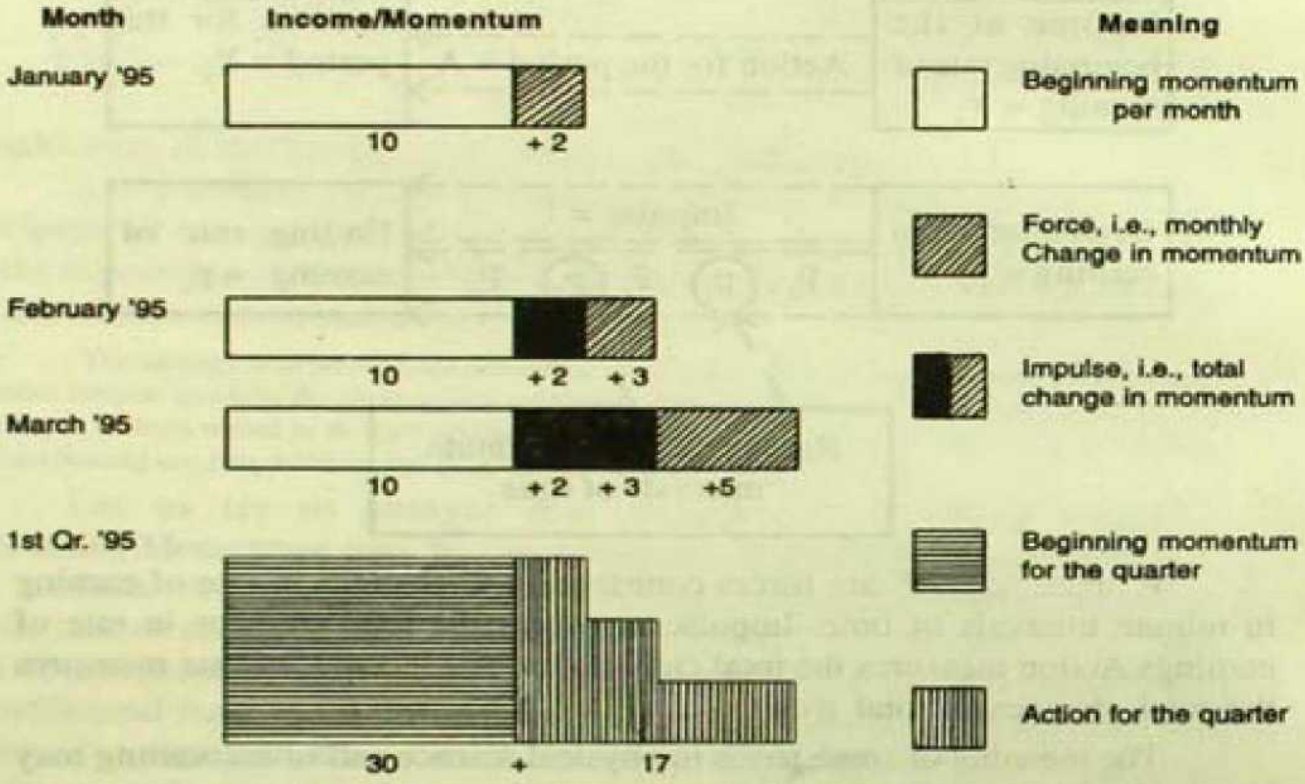
An illustration may help understand the terms in business reference. Let income for the first. quarter of 1995 be Rs. 47 composed of the income

for the month of January Rs. 12, February Rs. 15, and March Rs. 20. It is given that income for the month of December 1994 was Rs. 10. Net wealth of the business at the beginning of the quarter is stated to be Rs. 200.

We may present the monthly inome as below :

Diagram 3

Analysis of Monthly Income into Momentum Force and Impulse



From the above pictorial presentation it is clear that income for an accounting period can be classified into two major parts :(i) Income which arises from the constant rate prevailing at the begining of the period (i.e. begining momentum for the period), and (ii) The summation of additional income earned during each month of the period under discussion (i.e. action for the period).If we further analyse the quarterly income into monthly break-ups, we obtain several relationships as stated below :

(1) Quarterly income = Aggregate of momentum for all the months;

(2) Momentum for each month = Momentum at the begining of the month + Force applied during the month;

(3) Impulse :

(a) at the end of January, '95 = Force applied during the month of January, '95

[Impulse (Jan)] = Force (Jan)

(b) at the end of February '95 = Force (Jan) + Force (Feb) [Impulse (Feb)]

(c) at the end of March, '95 = Force (Jan) + Force (Feb) + Force (March) [Impulse (March)]

(4) Action for the quarter = Impulse (Jan) + Impulse (Feb) + Impulse (March),

Relationship between income, momentum, force, impulse and action may be explained algebraically as below :

Let Y_n = Income during the accounting period consisting of 'n' units of time.

p = momentum per i th unit of time.

P = Force per unit^2 in the ith unit of time

J_i = Impulse of forces during the period consisting of i units of time.

A = J_i = Action during the accounting period

$$Y_n = p_1 + p_2 + p_3 \ldots\ldots\ldots\ldots p_n$$
$$= (p_0 + p_1) + (p_1 + p_2) + (p_2 + p_3) + \ldots\ldots\ldots\ldots (p_{n-1} + p_n)$$
$$= (p_0 + p_1) + (p_0 + p_1 + p_2) + (p_0 + p_1 + p_2 + p_3) + \ldots\ldots\ldots (P_0 + p_1 + p_2 + \ldots\ldots\ldots p_n)$$
$$= (p_0 + J_1) + (p_0 + J_2) + (p_0 + J_3) + \ldots\ldots\ldots (p_0 + J_n)$$
$$= np_0 + \sum_{i=0}^{n} J_i$$
$$= np_0 + A \qquad \ldots\ldots (1)$$

In the same way, the relationship between income and wealth can be shown as below :

Let W_0 = Wealth at the beginning of the period

W_n = Wealth at the end of the period

Hence $Y_n = W_n - W_0$

or $W_n = W_0 + Y_n \qquad \ldots\ldots (2)$

If we put equation (1) in equation (2) we get the triple-entry equation as below :

$$W_n = W_0 + np_0 + A \qquad \ldots\ldots (3)$$

Now we put the problem of the example in triple-entry equation :

$n = 3$ (months)

Beginning wealth = $W_0 = 200$

Income during the quarter = $Y_n = 47$

Ending Wealth = $W_n = 247$

Beginning momentum (per month) = $p_0 = 10$

Ending momentum for January = $p_1 = 12$

Ending momentum for February = $p_2 = 15$

Ending momentum for March = $p_3 = 20$

$Y_3 = p_1 + p_2 + p_3 + 12 + 15 + 20 = 47$

Force in the month of January = $P_1 = p_1 - p_0 = 12 - 10 = 2$

Force in the month of February = $P_2 = p_2 - p_1 = 15 - 12 = 3$

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Force in the month of March = $P_3 = p_3 - p_2 = 20 - 15 = 5$
Impulse upto January = $J_1 = P_1 = 2$
Impulse upto February = $J_2 = P_1 + P_2 = 2 + 3 = 5$
Impulse upto March = $J_3 = P_1 + P_2 + P_3 = 2 + 3 + 5 = 10$
Action for the quarter = $A = J_1 + J_2 + J_3 = 2 + 5 + 10 = 17$
$Y = np_o + A = 3 \times 10 + 17 = 47$
$Y = W = W_n - W_0 = 247 - 200 = 47$
$A = Y = Y_n - Y_0 = Y_n - np_o = 47 - 3 \times 10 = 17$

At the end of the accounting period the equality of the three aspects i.e. wealth, income and action can be shown as below :

Ending Wealth = Beginning wealth + Income
= Beginning Wealth + Beginning momentum for the period + Action

Putting the problem of the example in the above equation we get :

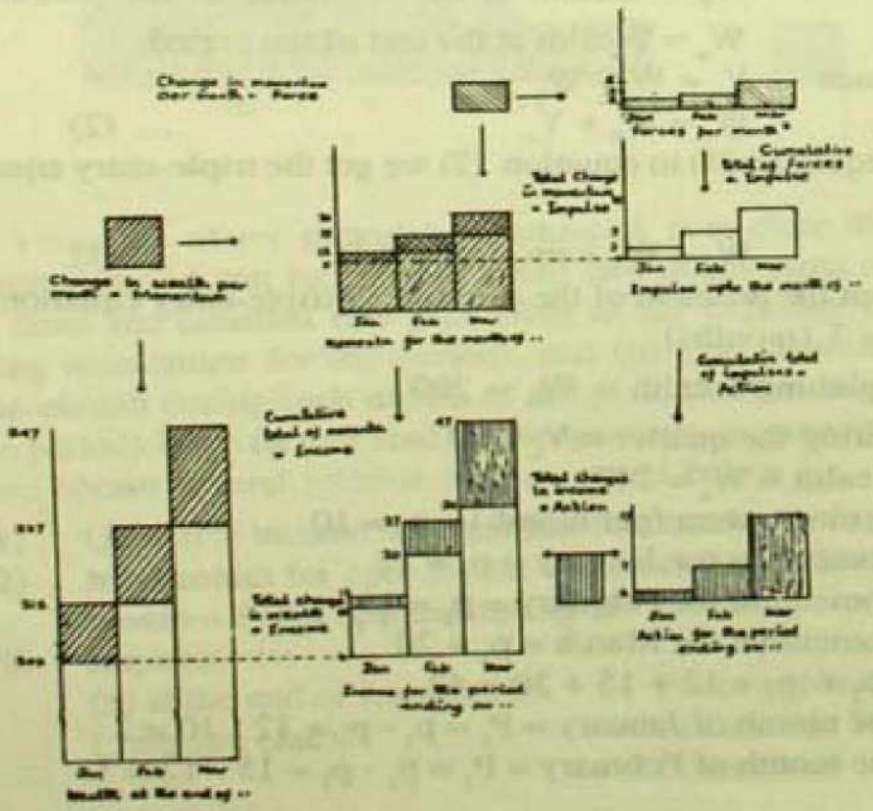
Wn = Ending Wealth = 247

$W_0 + Y_n$ = Beginning Wealth + Income = 200 + 47 = 247
$W_0 + np_0 + A$ = Beginning Wealth + Beginning momentum for the period + Action = 200 + 3 x 10 +17 = 247
Hence, $W_n = W_0 + Y_n = W_0 + np_0 + A$

A graphical presentation may help to understand the relationship of the components of the triple-entry model more clearly.

Diagram - 4

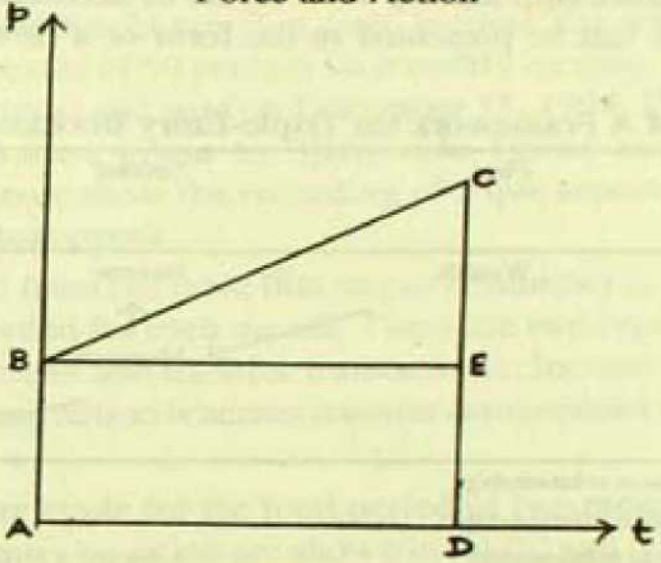
Graphical Presentation of the Relationship among the Components of Triple-Entry Model



If we shorten the length of the unit of time (which is one month in the example) to a minute level, i.e., to a point of time, then the relation among income, action, momentum, impulse and force can be graphically presented as below :

Diagram 5

Relation among Momentum, Impulse, Force and Action

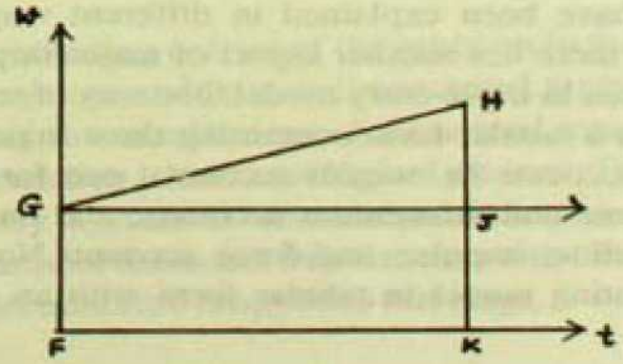


Here, p = momentum, $A = t_o$,
t = length of time, $D = t_n$,
AB = begining momentum = p_0,
DC = ending momentum = p_n,
AD = accounting period,
EC = impulse at the end of the period AD = J_n,
ACBE = Action for the period = A,
□ ABED = np_0,
▱ ABCD = Y_n, and
Slope of BC is the measure of force = P_i
(i = 0, 1, ... n)

In the same way the relationship between wealth, income and momentum can be shown in the following diagram :

Diagram 6

Relation Among Wealth, Income and Momentum



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Here, W = wealth, t = length of time
FG = W_0 = beginning Wealth
FK = accounting period
KH = W_n = ending Wealth
JH = Y_n, and
Slope of GH is the measure of momentum = p_i

The inter-relationship among three layers of accounts as shown in the above two diagrams can be presented in the form of a flow chart as below:

Table : 4 A Framework for Triple-Entry Bookkeeping

Layers of Accounts → / Length of time ↓	First		Second		Third
Accounting period	Wealth	⇒	Income	⇒	Action
Unit of time			Momentum		Impulse
Unit² of time					Force

⇒ a difference relationship
→ a derivative relationship
➔ an integral relationship

(Ijiri, 1986, p - 749)

Here derivative signifies the rate of change while integral denotes accumulated effect of rates of changes during a period. Difference signifies simply a measure of change of an object at two points of time.From the table it may be observed that :

i) Income is the difference of wealth at two points of time and action is the difference of income for two periods of time $\Delta W = Y$; $\Delta Y = A$

ii) Momentum is derivative of wealth and force is derivative of momentum, [$dw/dt = p$, $dp/dt = d^2w/dt^2 = P$]

iii) Forces are integrated to impulse, impulses are integrated to action and momenta are integrated to income
[$\int P.\, dt = J$, $\int J.dt = A$ and $\int p.dt = Y$]

[Symbols are used with the earlier meaning as have already been explained.]

So far the meaning of the terms used in triple-entry model and their inter-relationship have been explained in different ways.Apart from these theoretical aspects there lies another aspect of major importance.That is how to record transactions in triple-entry model.One way of recording transactions in triple-entry is in a tabular form containing three major columns : one for the first layer of accounts i.e. wealth accounts; one for the second layer of accounts i.e., income and momentum accounts; and one for the third layer of accounts i.e., action, impulse, and force accounts.Now let us explain the triple-entry accounting model in tabular form with an example.

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Example

A company was established on November, 1994 by owners who collectively contributed Rs. 2400 in Government Bonds whose face value was equal to the market value. The Bonds carried interest at the rate of 12 percent a year payable at the end of each month. A plot of land was obtained on Dec. 1, 1994 in exchange for the Rs. 1200 Government Bonds and the land was immediately leased for a Rs. 24 monthly rental. On December 31, 1994 the company collected the Rs. 24 rental in cash. Income Tax was paid at the end of each month at the rate of 50 percent on monthly income. A cash dividend of Rs. 15 was declared and paid on December 31, 1994. [The problem is based on an illustration given by Ijiri, vide Issues in Accounting Education, 1988]. We now show the recording of triple aspects of transactions in Table 5 (Vide next page).

It may be observed from the table that negative number is used. In Part A transactions are recorded for each month. There are two types of transactions : income transactions and transfer transactions. Income transactions affect wealth, income and action whereas transfer transactions affect wealth alone.

In part B entries are made for the total period of two months. In part C the terms ofthe triple-entry equation are shown in (a) (b) and (c). Equality of (a) (b) and (c) makes the trial balance under triple-entry system agree.

Another way of recording transactions under triple-entry system is array representation. Matrix representation of accounting entries may be considered as two-dimensional array representation which can be related to the double entry system of bookeeping. Similarly, accounting entries under triple-entry system may be made in an array representation which is three dimensional. A three dimensional array is a stack of matrices all having the same number of rows and columns. The dimension among which the matrices are stacked is called "Planes".

Recently, with the great advancement of software technology, multidimensional databases that go beyond the traditional axes of records (rows) and fields (columns) are within our easy reach not only in concept but also in actual implementation. Three dimensional array representation of accounting entries under triple-entry model may take full advantage of the new technology in practice.

We may start with accounting entries of the problem in the example in traditional double-entry system and in two dimensional array representation. Thereafter we may try to extend the two dimensional representation to three dimensional representation in the most logical manner. To accomplish this, another double entry system is constructed between two sets of accounts called momentum accounts and impulse accounts. To avoid additional complexity force accounts are dropped at this stage.

Table : 5

Recording of Entries under Triple - Entry Model

Dimension → / Events ↓	Wealth				Income				ACTION									
									Force			Impetus			Action			
	Cash	Stocks	Land	Total	Capital	Income	Beginning momentum	Ending momentum	Ownership	Management	Government	Ownership	Management	Government	Ownership	Management	Government	Total
Part: A																		
November 1994																		
Interest	24			24		24		24	24			24						
Rent																		
Tax	-12			-12		-12		-12			-12			-12				
Net Income						12		12	24		-12	24		-12				
December 1994																		
Interest	12			12		12	24	12		-12		24	-12					
Rent	24			24		24		24		24			24					
Tax	-18			-18		-18	-12	-18			-6			-18				
Dividend	-15			-15	-15													
Transfer :																		
Purchase of land		-1200	1200															
Net Income						12	12	12		12	-6	24	12	-18				
Part: B																		
Beginning wealth		2400		2400	2400													
For the period of two months :																		
Interest	24			24		24		12							48	-12		36
Rent	24			24		24		24								24		24
Tax	-30			-30		-30		-18									-30	-30
Dividend	-15			-15	-15	-15												
Purchase of land		-1500	1500															
Net Income						30		18							48	12	-30	30
Ending wealth	15	1500	1500	2415	2385													

Part C

Here (i) Beginning momenta for two months = 0 x 2 = 0; (ii) Income for the period = 30; (iii) Action for the period = 30; (a) Ending wealth = 2415 ; (b) Beginning wealth (dividend adjusted) + Income = 2385 + 30 = 2415 (c) Beginning wealth (dividend adjusted) + Beginning momentum for the period + Action for the period = 2385 + 0 + 30 = 2415.

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Step I : Recording under traditional double-entry system.

Transactions

1. Owners contributed Rs. 2,400 in Government Bonds with 12 percent annual interest payable at the end of every month.
   Marketable securities Rs. 2,400
   To Owners contribution Rs. 2,400
2. Interest received at the end of November
   Cash Rs. 24
   To Interest Income Rs. 24
3. Tax paid at the end of November
   Income Tax Rs. 12
   To Cash Rs. 12
4. Bonds Rs. 1,200 exchanged for a plot of land.
   Land Rs. 1,200
   To Marketable Securities Rs. 1,200
5. Land was leased for a monthly rental of Rs. 24
   No entry.
6. Interest on bonds and rent on land received for December
   Cash Rs. 36
   To Interest Income Rs. 12
   To Rental Income Rs. 24
7. Tax and dividend paid at the end of December
   Income Tax Rs. 18
   Dividend Rs. 15
   To Cash Rs. 35

Step II : A Two - Dimensional Representation

Table 6

Wealth - Income Statement

Wealth (columns) and Income (rows) as of Dec 31, 1994

Wealth → Income ↓	Cash Rs.	Bonds Rs.	Land Rs.	Contributed Capital. Rs.	Cumulative Income. Rs.
Contributions	—15	2400		—2385	—
Purchases		—1200	1200		—
Interest	36				36
Rent	24				24
Tax	—30				—30
	15	1200	1200	-2385	30

Since the owners contributed Rs. 2,400 and received Rs. 15 in a dividend distribution, their net contribution, is Rs. 2385, which will be the balance of the contributed capital account.Although it is not customary to treat owners' contributions or purchases of land as income accounts, these transactions could be treated as income accounts whose amounts are zero.

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Step III

Double-entry between momentum accounts and impulse accounts.

Transactions

1. Interest Income Rs. 24/mo
   To Owners contributions Rs. 24/mo
2. No entry
3. Income Tax (Rs.12) /mo
   To Government (Rs.12)/mo
4. Investment Income (Rs.12) / mo
   Interest Income (Rs.12)/mo
   Interest Income Rs.24
   To Owners constribution 24
5. Rental Income Rs. 24
   Investment Income (Rs.12)
   To Property Management Rs.12
6. No Entry

7(i) Income Tax (Rs.18) /mo
   To, Government (Rs.18) /mo

(ii) No entry for dividend.

Note : ( ) indicates negative values.

At the inception of the company, on Nov 1. 1994, the only momenta of the company are the interest momentum of Rs. 24/- mo and income tax momentum of Rs. 17/mo., yielding net momentum of Rs. 12/mo.One month later on Dec 1, 1994, the interest momentum is reduced to Rs. 12/ mo but a new rent momentum of Rs. 24/ mo is created by the management's action. The income tax momentum was also changed as a result to Rs. 18/mo.

Just as changes in wealth are accounted for by income accounts, we want to have changes in momenta accounted for by means of a set of "impulses" accounts.We attribute the initial interest momentum to owners since it was generated by owner's contribution of bonds.We attribute the change in momenta at the end of November to the management's action which led to the leasing of land Finally, the tax effect of all these changes is captured in a Government account, In this way, we consider three impulse accounts, the owner's impulse account, the manages' impulse account and the government's impulse account.At this stage it may be pointed out that force measures the change in momentum per unit of time i.e. rate of change in momentum.As impulse measures change in momentum during a period of time, it was derived as an integral of force.Question may arise as to why we did not begin recording of momentum changes through force accounts.In answer it may be quoted from Ijiri that "The development of accounting for force, however, requires a mature system of accounting for momentum and impulse which itself is yet to be developed" (Ijiri, 1988, p-282).

Step IV

Array representation of double entry between Momenta and Impulses

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Panels I and II of Table 7 present the momentum - impulse statement as of Nov. 30, 1994 and as of Dec - 31, 1994 :

Table : 7

Momentum - Impulse Statement in Unit of Rupees per month

Panel I : Momenta (columns) and Impulses (rows) as of Nov. 30, 1994

	Contribution	Purchases	Interest	Rent	Taxes	Cumulative Impulses
Owners			24/mo			24/mo
Managers						O/mo
Government					—12/mo	
Cumulative Impulses	0/mo	0/mo	24/mo	0/mo	—12/mo	12/mo

Panel II : Momenta (columns) and Impulses (rows) as of Dec 31, 1994

	Contribution	Purchases	Interest	Rent	Taxes	Cumulative Impulses
Owners			24/mo			24/mo
Managers			-12/mo	24/mo		12/mo
Government					-18/mo	-18/mo
Cumulative Impulses	0/mo	0/mo	12/mo	024mo	-18/mo	18/mo

Step V :Just as momentum integrates to income, impulse integrates to action.Since in the above momentum - impulse statements all entries have a duration of one month, each entry may be multiplied by one month and the results in the two statements may be added together, cell by cell, to determine the corresponding entry in an "income-action statement".The resulting statement is shown in Table - 8.

Table : 8

A Two Dimensional Representation : Income - Action statement
Income (columns) and Actions (rows) as of Dec. 31. 1994

	Contribution	Purchases	Interest	Rent	Taxes	Cumulative Impulses
Owners			48			48
Managers			-12	24		12
Government					-30	-30
Cumulative Income	0	0	36	24	-30	30

Step - VI Now that we have derived both the wealth - income statement and the income-action statement it is easy to develop a 'Wealth - action statement' which is a third pair of the three dimensions.

This statement is presented in Table - 9

Table:9

Two-Dimensional Representation of Wealth-Action Statement
Wealth (columns) and Action (rows) as of Dec. 31, 1994.

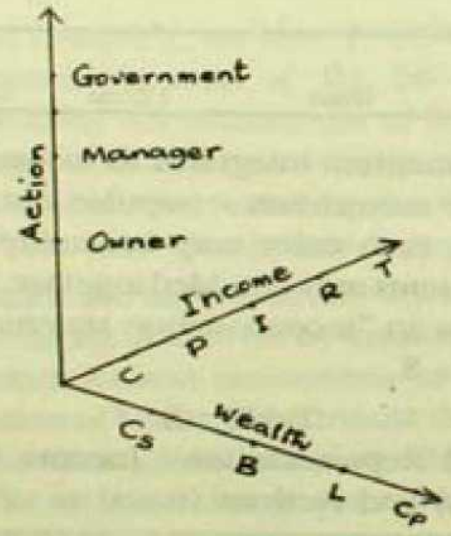
	Cash	Bonds	Land	Contributed capital	Cumulative Income
Owners	33	2400		-2385	48
Managers	12	-1200	1200		12
Government	-30				-30
Cumulative Income	15	1200	1200	-2385	30

Step VII.

Finally we present the three - dimensional representation in Table - 10 where columns are identified by income accounts, rows identified by wealth accounts and planes identified by wealth accounts and planes identified by action accounts.

Diagram 7

Diagramatical Presentation of Three
Dimensions in Rows, Columns and Planes



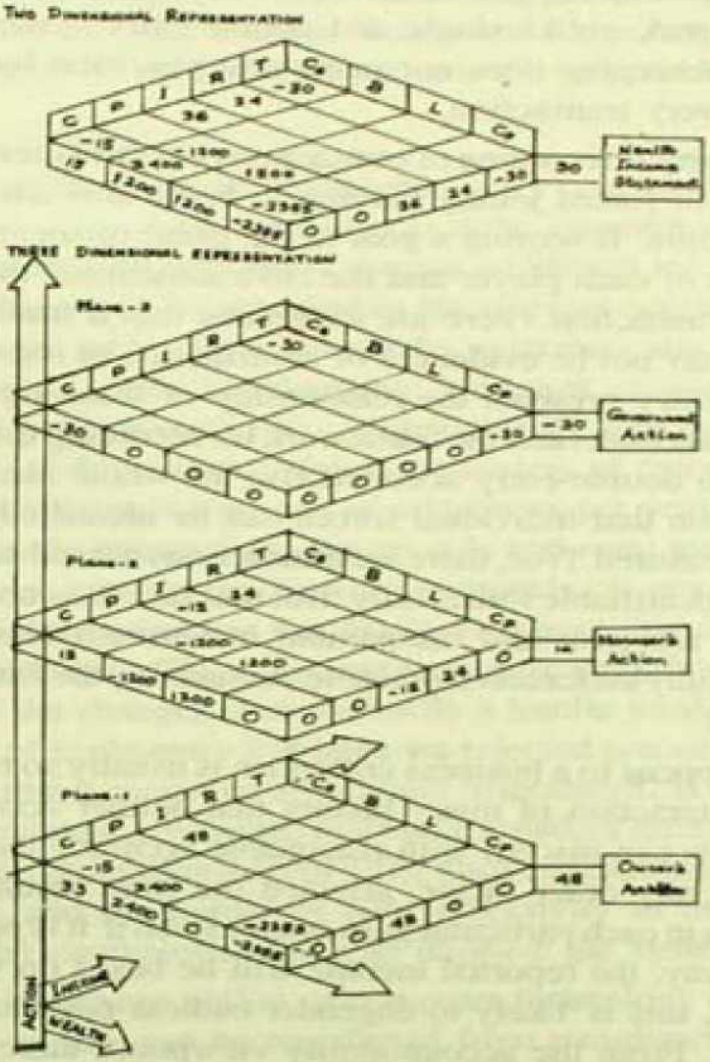
Here Income accounts are

C - Contribution
P - Purchase
I - Interest
R - Rent
T - Tax

and wealth accounts are

Cs - Cash
B - Bonds
L - Land
Cp - Capital contributed

Table : 10
A Three-Dimensional Representation :
Wealth-Income-Action Statement
Wealth (rows) Income (columns) and Action (planes) as of Dec, 31. 1994



We observe from Table-10 that the two dimensional wealth-income statement has been extended to three-dimensional array by introducing 'action' as the third dimension. As a result we have as many wealth-income statements as the number of action accounts.It is three in respect of the above example.By adjoining the column totals of each plane the income action statement can be obtained and by adjoining the row totals of each plane we may get the wealth-action statement.The very essence of this type of three-dimensional presentation is that the first dimension 'wealth' is explained by the second dimension 'Income" and again the second dimension 'Income' is explained by the third dimension 'Action'.

Criticism

Every concept, model, discourse or dissertation is developed with a view to realising some specified objective.But what is the basic objective of

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triple-entry book-keeping is not directly specified in Ijiri's work.That is why (Fraser 1993, p 152) points out that 'the first, and most important, is that Ijiri does not consider ex-ante the need for, and objective of, triple-entry.....The identification of problems and objective is important, otherwise accounting theory becomes merely the generation of intellectual artifacts'. (Fraser, 1993, p - 153). That apart, unlike single and double-entry systems, the proposed triple- entry bookkeeping does not make any provision for recording three dimensions of every transaction.

Double-entry is recording of transactions but third dimensional accounting is recording of forces jointly playing to bring into effect the result that we call a transaction. If scoring a goal in the game of soccer is a transaction the contributions of each player and the environment are the forces bringing into effect the transaction.There are evidences that a transaction has taken place but there may not be evidences of contribution of individual forces.The model of triple-entry presents the relationship of these force accounts with the double-entry accounts and the framework for recording these force accounts is integrated with double-entry accounts.But the whole idea is dependent on a basic assumption that individual forces can be identified and their contributions can be measured.True, there are transactions behind which exist a single or multiple but identifiable forces only. But that fact does no help in recording of forces which are joint and inseparable in nature.It seems impossible to identify meaningfully the forces responsible. As stated by the Financial Accounting Standards Board :

"What happens to a business enterprise is usually so much a joint result of a complex interaction of many factors that neither accounting nor other statistical analysis can discern with reasonable accuracy the degree to which management, or any other factor, affected the joint result (1978, para 53) bringing changes in each particular gain or loss.Even if it is possible to meausre income in this way, the reported income will be based on various subjective estimates.Hence, this is 'likely to engender endless potential for dispute and argument..... From the accountability viewpoint, there may be negative effects as a result of disputes, and uncertainty leading to a loss of confidence in the accounting system' (Fraser, 1993. P 157).

There is no evidence that the degree of detail which a triple-entry system could provide would be beneficial to decision-makers at this stage of development of the system.At the core of the proposed system lies the introduction of dynamism in the accounting system.The concept of the proposed momentum accounting is based on the assumption of continuity in the generation of income. But the discrete nature of various transactions makes it difficult to spread them over time for being treated as continuous.Moreover, it is quite obvious that the volume of recording under triple-entry will multiply enormously.But we are not sure how much benefit will be derived from such multiplication.

Doctrine of objectivity and principle of realisation form the bases of double-entry bookkeeping.But in triple-entry neither the accounting of mo-

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mentum nor the accounting of forces, impulses and actions is based on objective evidences. Moreover, the aspect of realisation is not at all considered in recording of third dimensional entry. In this way arguments may be raised how much logical as to the extension of a system is, which violates some basic principles of the original system.. In fact, arguments may be raised on points one after another. The concept is new and an ocean of debate is before it. We admit that we are not going to count every wave of that ocean.

Conclusion

The utility of the proposed triple-entry system, in fact, is in question. But the urgency of the third dimension is quite apparent from the fact that most of the accounting reports today contain additional information giving explanation of changes in income during the relevant accounting period, although such kinds of information cannot be systematically provided through the existing double- entry bookkeeping. Measures of growth rate and of forces behind changes in growth rate are undoubtedly very much relevant and useful to managers and investors today. If the system of recording can be developed to such a stage that the growth of a business per year, per month or per day can be instantly known from the records and even more, the rate of changes in the rate of growth can be known quickly, if not instantly, the users of acounting information are not likely to ignore this development as a mere intellectual exercise. The subjective element in identifying the underlying forces making for the changes is undoubtedly a hurdle weakening the soundness of the system of triple-entry. But have we rejected accounting of depreciation on the ground that it cannot be objectively determined? Is it not a matter of debate whether we should give up the relevance aspect of information only to maintain objectivity in generation thereof ? The third dimensional information is relevant and useful, and the hurdle of poor objectivity in its generation should be overcome by continuous efforts to improve the system over time.

The enormous ability of computer technology can better be utilised if accounting system can be transferred from two-dimensional double-entry to three-dimensional triple-entry. If triple-entry system is duly programmed in a computer, the machine can provide instantly not only the rate of income of business but also the rate of change in rate of income. Science and technology have advanced at an unthinkable pace and the needs of the users accordingly have changed enormously. Hence it is high time that the accountants came forward to develop and implement this new model of accounting. Accordingly, Ijiri opines, "perhaps the best way of implementing this triple-entry system is to take a small company as a prototype and to concentrate on identifying and measuring" income momentum. Having developed a reasonably sound basis for measurement of income momentum, changes in income momentum may then be analysed and attributed to specific impulses that exist in and out of the enterprise. "By taking advantage of personal computers and electronic spread sheets, the third dimension can be made much more easily accessible and comprehensible" (Ijiri, 1988, p-284). Once the income momentum is measured and atleast some composite impulses are accounted, attempts may

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be made to split the composite impulses further in minute detail and identify as many forces as possible in and out of the organisation to explain explicitly the changes in rate of income.

At present it may not be possible to inject the idea of acceleration and deceleration in the proposed model of triple-entry in a mathematical way but attempts may be made in future to define each type of cost and income as continious function and then the accounting model can be converted in to a mathematical model for deriving the information immediately with mathematical precision.

Once the third dimension of the transactions is recorded, the factors contributing to changes in income can be analysed and it would be easier to locate areas of efficiency and ineficiency.If unfavourable forces are identified earlier, control can be operative in a more effective and meaningful way. Predictions with a high degree of precision become easier when the causes or factors responsible for the happenings are identifiable earlier.Triple entry system, we may hope, will be in a position to provide beforehand necessary signals about the factors responsible for future business happenings.

The major criticism leveled against the proposed triple-entry system is that neither the objective of the system nor the ex-ante need for the same are stated clearly.Necessity, it is true in most of the cases, is the mother of invention.But could people imagine the present day uses of electricity at the time it was invented? Hence the question whether needs will precede invention or invention will precede needs is not material for the growth of civilisation.In the case of triple-entry, Ijiri's untiring labour over decades tried to introduce the concepts of force and impulse (originally developed in physical science) in the accounting system.Criticism may be made that his formulations cannot present a completely workable structure which can be applied to our present day problems. But there is no doubt is a breakthrough in the evolution of accounting science.

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Accounting Dynamism : The Need for Integration between Research, Teaching and Practice

A.Mallik *
S. Ghosh **

Introduction

With the continuous advancement of human civilisation, accumulation of knowledge takes place in every sphere of human activity. Apart from the eternal quest for the unknown, satisfaction of the ever growing human needs necessitates innovation in every field of skill and knowledge. Human needs provide the prime force behind human efforts in a given environment. Needless to say, here 'environment' encompasses, over and above the natural or geographical factors, the socio-economic-political-cultural setting within which man lives individually and in groups. Just as environment sets the boundaries for human activities, such activities also sometimes tend to change the character of some of these environmental factors.New forms of organisation, new economic systems emerge, new enactments are made — existing ones get amended — all due to deliberate decisions taken with the objective of meeting human needs in a better way.

Thus, human needs are shaped by the prevailing natural, economic, political, social, legal and cultural environment. Human efforts are directed to meet the needs and in the process produce changes in the environment which may again give rise to new set of needs requiring solution by newer efforts. The cycle goes on, civilisation strides forward and the body of knowledge in each sphere of human activity develops. The body of knowledge, a subject discipline, is consolidated and enriched through study, constant search for relevant and effective innovative ideas and application in practical field for problem solving and acceptance by interested groups.

Accounting as a discipline has reached this enviable stage of development from a modest beginning, perhaps with the advent of money economy, through constant study and research by academics and, in large measure, through facing challenges for meeting ever changing demands in the practising field. After giving a brief account of the development of accounting thought through the ages in the next section, an attempt will be made in subsequently to see what *is* and what *ought to be* the interaction between accounting education, accounting practice and accounting research and in the process a review will be made of the state of affairs in this regard in our country.

Evolution of Accounting

Although it is believed that the idea of accounting in the form of some sort of record keeping of economic activities existed in the Assyrian, Babylonian and Vedic (5000 B.C. to 1000 B.C.) ages, it is not worthwhile, in the present

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context, to look back beyond 14th century even if we feel interested in finding the background to the first published work on double-entry bookkeeping by Luca Pacioli (Roover, 1955, pp. 405-20). Hendriksen (1977) referred to Professor Raymond de Roover who "found evidence that double-entry... possibly originated simultaneoulsy in several Italian trading centres gradually over a period of time " in the first half of the 14th century when concepts of (i) separate business entity, (ii) money measurement and (iii) partial understanding of the distinction between capital and revenue developed. As nicely explained by Hendriksen, with the rapid development of trade, wealth accumulated in Italian cities and individual trading was largely replaced by agency and partnership arrangements. Thus, accountability of the active partner to the dormant, fund-providing partner was needed to be reckoned. Again, development of credit and accumulation of capital got considerable impetus when double-entry bookkeeping emerged as a complete system to meet the accounting needs of the groups of individuals forming trading firms of that time.

In 1494, Luca Pacioli published in Venice his treatise mainly on Mathematics, "Summa de Arithmetica, Geometrica, Proportioni et Proportionalita" which included a section on double-entry bookkeeping with description and reasoning. The book helped the spread of the use of double-entry system. Several books on the subject were later published in other European languages including English and French and the 'Italian Method' was used in the sixteenth and the seventeenth centuries throughout the whole of Europe.

As was noted earlier, the development of a body of knowledge is limited by environmental constraints — the prevailing objective factors. In the early periods of the use of double-entry system, the objective of accounting was mainly to provide information to the owner. Personal and business affairs of the owner were mostly reported together. Some sort of secrecy was maintained in the absence of any external pressure for ensuring accuracy or uniformity in reporting. While preparing the asset statement, for example, 'Jewellery', according to Pacioli, "should be priced at current quotations ... and in case of doubt ..." prices should be higher than lower .. so that you can make a larger profit [S. Paul Garner, in an article reproduced in Morton Backer's Handbook of Accounting : cited by Basu, 1975]. Again, since most business activities had specific trading objectives of relatively short duration, profit was calculated at the end for the venture as a whole and the concept of accounting period did not develop. The owners having direct and personal contact with the affairs of the business did not find it necessary to compute periodical profit even for ventures of long duration. Again, with various monetary units operating, the records of inventories and other assets often became rather descriptive.

After the initial period of use of the system of bookkeeping in business houses and also monasteries and the state, a stage came when the 'critique of bookkeeping' appeared. "With the critique and widening sphere of book-keeping, began theoretical research into the subject" (Peragallo, 1938).In the year 1605, Simon Stevin came out with a new idea of balancing profit and

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loss at the end of each year instead of at the end of the venture. It, however, took quite a long time for official pronouncement to come somewhat in this line. For example, in 1673, the Code of Commerce in France, required that a Balance Sheet be drawn by every businessman at least every two years (Bowden et al, 1937). The other major events in the evolution of business firms and their accounting style were the Industrial Revolution and the emergence of limited liability concept in corporate sector. When demand for industrial production increased manifold, large scale production units emerged.This necessitated the accumulation of huge amount of capital and the divergence of ownership from control and management. Enormous technological improvement and radical institutional changes took place which required the accounting practice to adapt and adjust to the new surrounding.Although personification of accounts came about earlier and some sort of a concept of separate entity developed, the emergence of company form of organisation brought about changes to meet the need for accounting for capital contributions by different types of owners, and that of computation and distribution of periodical profit. The chartered company, the famous East India Company was floated as early as 1600, long before the British Companies Act of 1862 was passed and in its accounts the problems of valuation of stock and calculation of divisible profit were solved after making distinction between capital and revenue. Some other chartered companies were also formed and the concept of limited liability became popular. But the real need for organising big business houses was felt after the Industrial Revolution and it was met by enacting Companies Act. The management of companies had to prove the effectiveness of their stewardship, to pay heed to public opinion and to obey the legal requirements, and all these brought sweeping changes and rapid development in corporate reporting practices by means of published accounts. The subject of accounting later proliferated into branches like Cost Accounting and Management Accounting to meet specific requirements of information for decision making mainly by the management.

As a continuation of this part of the analysis of past events, wherein requirements of big businesses had to be accommodated by accounting practice, it may not be out of place to mention the efforts that are being made now to consider and suggest ways for international accounting harmonisation. When multinational or transnational corporations are doing business globally, cutting across boundaries of different nations, harmonisation of accounting standards is a real need for these mega-business houses. They would like to have a consolidated statement, listing of their securities in stock exchanges of different countries and have an access to global capital markets. International Accounting Standard setting bodies would like to frame globally accepted standards. A recent publication by Basu (1995) has comprehensively tried to deal with the subject.

Professional accounting bodies in different countries, specially those in countries like the UK and the USA, have helped in bringing about rational uniformity in practices not only in the countries concerned but in the accounting world as a whole. The official pronouncements of bodies like American Institute

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of Certified Public Accountants, American Accounting Association, The Institute of Chartered Accountants of England and Wales, The Institute of Cost and Management Accountants and those of the bodies like Accounting Principles Board, Securities Exchange Commission, etc., are rightly considered as the output of thorough professional research and as such they deserve proper consideration across countries.

A look at the short history of evolution of accounting thought and practice outlined above may help corroborate the idea developed earlier that a dynamic subject like accounting is alive to the changes and need for development necessitated by such changes that take place in the environment. True, accounting development has given a fair account of its adaptability. When practice would face new challenge, accounting system would meet the same by innovative ideas and theories backed by legal or professional pronouncements. Should it be taken then, that the interaction between research and practice in accounting or that between teaching and practice or between research and teaching is at the optimum level? This aspect will be examined in the next section.

Interactions among Practice, Teaching and Research in Accounting

Accounting is a subject where there is a clear field of practice for professional practising accountants. Apart from this, there is accounting education and accounting research. Ideally, there should be coordination and proper interaction among these three functions. Accounting academicians and practitiones perform these functions. Although no group has monopoly over any of these functions, some persons are basically educators (teachers), some are practitioners while researchers overlap on these two groups. Generally, more teachers do research than do practitioners. Robert S. Kaplan (1989) and William R. Kinney (1989) have shown the interrelationships among these three functions by means of a triangle linking Research at the top to Teaching and Practice as the two points on the base line.

The diagram is presented below in Figure 1.

FIGURE 1
CAUSAL LINKS IN THE RESEARCH-TEACHING-PRACTICE TRIANGLE

Source : W.R. Kinney. Jr. The Relation of Accounting Research to Teaching and Practice : A Positive View, Accounting Horizons, March 1989, p.119

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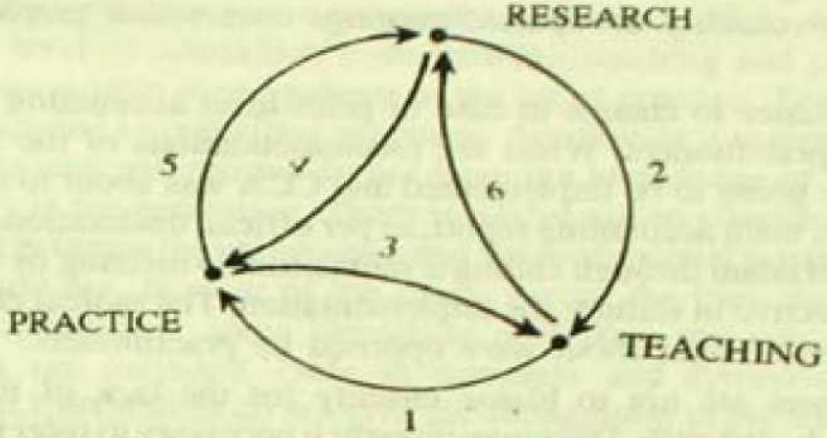
Here three possible pairs of functions are considered, like, Teaching-Practice, Research-Practice and Teaching-Research, and two-way relation is conceived for each of these pairs. Hence there would be six directional relations, namely, (i) Teaching to Practice, (ii) Practice to Teaching, (iii) Practice to Research, (iv)Research to Practice, (v) Teaching to Research and (vi) Research to Teaching. R.S. Sterling (1973) in his widely discussed paper, elaborately dealt with what according to him were the degrees of interrelation between these three points, i.e. how strong the six directional relations were. Perhaps everybody would agree with Sterling that relations (i) and (ii) work well. As per(i), the accounting educators perform the function of passing on to the students — the new generations of managers and accountants—the accumulated knowledge of the principles and practice of accounting. Academic world passes on whatever it has to the would-be-practitioners. As per relation (ii),the academic world gets feed-back regarding the experience of the practitioners. The 'Case-Study' method of teaching which uses real-life problems faced by practitioners and their on-the-job treatment helps give class-room teaching a nice practical bent. To the extent that problems on-the-job are attempted to be solved by the management using their experience in the context of their theoretical knowledge obtained when they were students, the accounting teaching gets tested in practice.

Relation (iii) requires that the difficulties encountered in practice owing to the limitations of accepted procedures or for recent changes in environment of accounting, are to be thoroughly researched. In addition to theoretical research problems, empirical research issues should be given due importance. In relation (iv) research results aiming at solving practice problems may be passed on to the industry and business houses for their benefit. Here, relation (iv) is relevant in that these research outputs should find place in teaching currricula so that through relation (i), in future, the knowledge may pass on to practice, automatically. Relation (v) wants that gaps in theory which surface at the time of teaching should become research topics and better a frame of reference searched out.New teaching responsibilities sometimes lead to selection of right type of research issues. Relation (vi) identifies a common area of responsibility for academic accountants. Professors and scholars are to continue research for increasing the existing stock of knowledge which the teachers would pass on to the current and future generations.

The above six interrelationships are specified in the following diagram by way of six areas which are numbered accordingly.

FIGURE 2
SIX ARCS OF THE RESEARCH-TEACHING-PRACTICE TRIANGLE



Source : R. Kaplan, Connecting the Research - Teaching - Practice Triangle, *Accounting Horizons*, March 1989, p. 129

Sterling's analysis (1973) of the present situation shows that it is far from satisfactory. According to him, there is almost no perceived conflict between teaching and practice.What are accepted accounting practices are identified and teachers teach them in classes so that their students get jobs. On graduation, these accepted practices are used by the new practitioners. He uses the expression : $P(x) \rightarrow E(x) \rightarrow P(x)$; i.e., if x is practised, then students are taught that x is practised and then, upon graduation, students implement x in practice'. He suggests a 'normative solution' (T.R. Dyckman, 1989) like $R(x) \rightarrow E(x) \rightarrow P(x)$ which could read : if researchers (R) find that x is the case, then educators teach that x is the case and upon graduation, the students implement x in practice. Sterling uses an illustration from the field of medicine to show the appropriateness of this approach. A new type of disease is to be dealt with. Thorough research identifies the virus, combating agent is found, the result finds place in text books as well as practitioners' journals. Students are taught the new findings of research and they use the same in practice. The latter approach helps establish a virtuous circle among the three elements of Research, Teaching and Practice, in the area of medicine.Ths can be effectively adopted in the field of accounting, too. In order to ensure this, it would be necessary for practising accountants to voice the technical and conceptual problems they encountter in their day-to-day dealings with clients. A possible means of enabling such feedback could be in the form of problem 'banks' or 'forums' constituted of academics from various disciplines of study, researchers in accounting, and the practitioners themselves. Problems faced in accounting practice would then receive the attention of researchers and could be systematically dealt with for seeking feasible solutions. The research output can then serve as inputs for teaching in academic institutions so that students (who are prospective practitioners and/or managers) can be better equipped as future accounting professionals.

The Reality

But professionals are not enthusiastic in incorporating immediate changes in their practices. Arthur Wyatt (1989) points out that practitioners are 'adamantly opposed to any accounting practice that injects volatility into

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the measure of reported earnings. It might be more accurate to say that the opposition is to volatility in reported earnings over which preparer has no control'.

The resistance to change in case of price-level accounting in the UK came from the practitioners. When the recommendations of the Sandilands Committee were going to be implemented and CCA was about to replace HC accounting as the main accounting report, as per official declaration, the efforts of Keymer and Haslam through calling a requisitioned meeting of the council proved to be effective in stalling the implementation. The radical changes that were going to be brought about were opposed by practitioners.

Practitioners are not to blame entirely for the lack of interrelation between R«search - Practice. Dyckman thought it necessary to refer to an article in *Time* in this context, although the article did not relate to accounting particularly. To quote Dyckman : " What does the work of accounting scholars mean to practicing accountants? So far not much. Most of the discussions have taken place within the confines of the academic world. And when the academic experts publish their theories, they tend to turn out highly technical tomes that only a few fellow specialists could, or would want to, read... The secret meaning (of research) requires a Ph.D. to disentangle. A kind of intellectual bias has grown up. Unless you are aware of the very latest academic theory, you may as well not read the research. The result is a dangerous gap between thinking at universities and practice in thriving organizations" The opinion expressed in the sentences within quotes will be shared by many academicians as well.

Research is not undertaken with priority in appropriate areas.Or, they are not completed in time. The results are not made available in understandable language. Professor scholars, even if they believe in certain research findings, do not try to teach their students effectively so that these students might create conflict between teaching and practice out of which desired changes might have resulted.

Consider, for example, the case of including in accounting reports the cost of pollution abatement. Private costs of a firm are to be minimised for maximising private profit. Private costs are costs of resources used or destroyed that are paid for by the firm. But the social costs of a business in the sense of resources destroyed, the costs of which are not to be borne by the firm, are mostly ignored in computing profit maximising formula. Typical of such destruction of resources is air pollution, pollution of river water, deterioration of residential and agricultural areas. These are borne by the society. Even measures that are prescribed for abatement of pollution are not undertaken by all firms. Some deliberately ignore them for minimising private costs. If accounting does not take care to make full disclosure of these facts, it is encouraging the pollutants. (F.A. Beams & P.A. Fertig, 1972).This area is being thoroughly researched. Still, we have to wait for a long time till the IASC will come out with a standard as an expression of pious desire.

The situation in our country is much worse. We cannot think of a better

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interrelation between research and teaching or between research and practice than what is obtaining in developed countries. In fact, we have less than desirable level of interaction even between teaching and practice. Teachers cannot always train their students in the art of practice. Teachers themselves are not exposed to prevailing practices. Accountancy students who come out of colleges and universities do not have the knowledge of what is going on practically in the profession. There is, above all, an unacknowledged conflict of interest between the universities and the professional institutes. Professional institutes do not, in most of the cases, favour the idea that at least in their research committees, some University professors and scholars *but* non-professionals are included. Only in seminars and symposia we talk about interaction.Universities do not give due recognition to professionally qualified persons for senior teaching jobs. Accounting academics and professionals have also failed to respond to the needs peculiar to our environment. In a so-called mixed economy, a gigantic private sector came up. Its objectives were not just profit maximisation. Declared social objectives were exploited for political considerations. But no serious thought was given to devising ways of reporting additional costs for attaining social objectives. The cost of becoming a model employer, of looking after the credit needs of priority sectors was never sought to be computed or disclosed. The accounts of panchayats and other local bodies should disclose the creation of social assets and the welfare measures undertaken. These areas deserve our attention. We have to respond. Otherwise we the accountants should fail in our duty to the society at large.

Conclusion

The universities and the institutes should open serious dialogues to find ways of establishing and strengthening desirable linkages between Research, Teaching and Practie so that our subject can live upto the expectations of a truly dynamic subject. In particular, a means of feedback from practice to research must be instituted on the lines spelt out earlier in this paper. Only then, the widening gap between the need of purposeful research, on the one hand, and the need to improve the present state of accounting practice, on the other can be bridged. In the ultimate analysis, this would foster meaningful accounting research and utilisation of research funds, high quality accounting education, and also healthier, sounder and more effective accounting practice.

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Section II

Issues in Accounting Practice

This section contains four articles on some issues in accounting practice.

Conflict among self-interested individuals in a nexus of contracts can be minimised if accounting principles, procedures and practices are in harmony. Accounting standards may be considered as an effective means to achieve this end, and to operationalize ideas and findings emanating from accounting research and education in the field of accounting practice. They reflect attempts to harmonise diverse accounting practices into a set of prudent principles and policies, which if consistently followed, can lead to the provision of qualitatively better financial information. T. P. Ghosh in ***Accounting Standards : Recent Developments and Contradictions*** *attempts to highlight some of the conceptual contradictions embedded in internatational and national accounting standards. Recent developments made in attempting to reconcile existing differences, in clarifying ambiguities and in reducing alternatives offered, are also outlined. In conclusion, some suggestions for reforming the conceptual and legal frameworks of accounting are made to ensure greater uniformity in corporate reporting.*

Another issue of interest observable in corporating reporting practice is the inability of financial statements to exhibit the standard 'true and fair' view of the state of affairs and working results of business. Prangopal Bhattacharya in ***Disclosure of True and Fair View of the State of Affairs of Companies : An Overview*** *discusses why the concept is infeasible and impractical. In the newly opened multiplex avenues for the growth of the national economy, there is a voracious appetite for investment information. Data are required to give an insight into the future of the enterprise for present and prospective investment. The question of secrecy becomes vital here since such disclosure may hazard the security of enterprises. Thus, how much disclosure is appropriate for showing a true and fair' view of the state of business affairs depends on the need for guarding the interests of conflicting interest groups.*

In the context of changes in economic environments worldwide, Indrajit Dhar, in his article, ***Impact of Globalisation on Accounting*** *attempts to identify the effects of these developments in the Indian economy and to relate them to accounting. The challenges and opportunities of globalisation from a national standpoint are analysed and the emerging reporting requirements and amendments are chalked out. The author also specifies the possible changes in respect of investment and financing decisions of the finance managers' function, and shows how decision making tools are being reshaped at the operational level.*

Alluding to the politico-socio-economic realities of third world countries and recognising the need for accounting to be responsive to changes in the environment, Arup Choudhuri, in his paper, ***Accounting Education and***

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Financial Reporting Systems of the Third World : A Mismatch of Indigenous Environment and Alien Concepts, *maintains that any system of accounting education and financial reporting that is unrelated to the social reality of a given society is bound to be out of date and out of place. Deliberately or unconsciously, most third-world nations follow the blue-prints of accounting systems of their erstwhile colonial rulers or of some developed nation. Paucity of financial resources and pressures exerted by powerful vested interests inhibit the introduction of substantial reforms necessary for implementing accounting education and financial reporting systems geared towards socio-economic needs.*

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Accounting Standards : Recent Developments and Contradictions

*T.P. Ghosh**

Introduction

Accounting Standards are statements of accounting principles and policies that prescribe valuation, recording and disclosures of transactions and events. They are products of attempts to harmonise diverse accounting practices into a set of prudent principles and policies which expectedly generate qualitatively better financial information if followed together, consistently in the preparation and presentation of financial statements. Accounting Standards Board (ASB) of the Institute of Chartered Accountants of India has so far (August, 1994) issued thirteen accounting standards (AS) (a detailed list is given in Appendix - I) covering various accounting issues. On the other hand, the International Accounting Standards Committee (IASC) has so far issued thirty-one international accounting standards (IASs) of which ten have recently been revised in a bid to reduce alternatives offered within the standard.

The most titillating expostulation of the accounting standards centres round the large number of alternative accounting procedures allowed for almost all issues covered which are considered as a list of all possible alternative practices rather than standardisation. In many cases, the existing legal framework relating to corporate accounting and reporting provides incongruous policies which accounting standards cannot override by their very nature. Lastly, standards themselves contradict each other in many issues in a proclivity to recognise substance over form.

This article intends to highlight certain conceptual contradictions embedded in the accounting standards and recent developments in the national and international fields with a reconciliation of the existing differences. It is divided into two sections - the first section highlights the conceptual contradictions and the second section discusses recent developments.

Conceptual Contradictions

Fundamental Accounting Assumptions

IAS-1 and AS-1 "Disclosure of Accounting Policies" recognise going concern, consistency and accrual as fundamental accounting assumptions, disclosure of which is not necessary if they are followed in the preparation and presentation of financial statements. Whereas exceptions to such presumptions are not identified in case of 'going concern' assumption variations from consistency and accrual are specified in other standards.

Going Concern

An enterprise is normally viewed as a going concern, i.e., continuing

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in operation for the foreseeable future if it has neither the intention nor the necessity of liquidation or of curtailing materially the scale of operation. A large number of sick industrial companies in India which prepare financial statements cast fundamental doubt on the validity of such a fundamental accounting assumption. When an entity's going concern status is in doubt, the users need to understand its financial position in terms of net realisable value of assets, ignoring historical cost valuation.

It is popularly believed that until an entity goes into liquidation, financial statements should be prepared following going concern assumption. An interesting observation of a statutory auditor of a sick company is indicator of the "going concern" fallacy — "The company is sick industrial company within the meaning of Clause (0) of Sub-Section (1) of Section 3 of the sick Industrial Companies (Special Provisions) Act, 1985. The company has referred the matter to the Board for Industrial and Financial Reconstruction (BIFR). BIFR has appointed State Bank of India as an operating agency, which is preparing scheme for revival of the company. However, in view of the continuing huge losses resulting in total erosion of net worth of the company, its ability to continue as a going concern is dependent upon approval of a revival scheme by BIFR and its implementation".

Interestingly, Notes on Accounts 1992-93 of another sick company discloses that "Accounts of the company have been drawn up on the 'going concern' concept. However, in view of the negative net worth of the company, its continuance as going concern is dependent upon rationalisation of debt-equity structure, steps towards which have been taken up by the Company".

Even when a company is put into liquidation, its financial statements are prepared following historical cost unless and until the assets are realised.

Assets and liabilities of going concerns are generally valued at historical cost which implies that in normal course of business assets would realise at least their historical costs. If the going concern assumption breaks down, the entity's assets may not realise their historical cost based value even in an orderly disposal. In fact, the shareholders and lenders of a 'non-going concern' having doubtful status should not be camouflaged with inflated value of assets and under-estimated liabilities. Financial statements should clearly indicate how much of the shareholders' funds has been lost and how much still remains.

A recent Canadian Research (Boritz, 1991) has classified the circumstances when 'going concern' status of an entity is in doubt into four categories:

i) Significant doubt;
ii) Substantial doubt;
iii) Very substantial doubt; and
iv) Total disbelief

If there is *significant doubt* about the validity of the 'going concern' assumption, it is necessary to disclose such doubt by way of a note to prevent financial statements being misleading. Such a note should include adverse conditions and events which raise significant doubt and also management's

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plans for dealing with those *adverse conditions and events*. It is also necessary to disclose such adjustments that would have been necessary if 'going concern' assumption was not followed. In case there is *substantial doubt*, such doubt should be expressed simply by replacing the words *significant doubt*.

If there is very substantial doubt about the validity of 'going concern' assumption, disclosure should include contingencies, realisable value of assets and liabilities, possible effect on revenue and expenses and anticipated reclassification of assets and liabilities from long-term to current.

Lastly, if there is total disbelief of the 'going concern' assumption, financial statements should not be prepared following going concern assumption.

The Canadian study makes distinctions between going concern and liquidation approaches considering degrees of doubt. Back in 1975, 'Accountants' International Study Group (AISG) Report on 'Going Concern Problems' discussed the then practices in Canada, the U.K. and the U.S. and suggested that when an entity is clearly no longer a 'going concern' a different basis of valuing assets and liabilities should be adopted. Till date the 'going concern' lacuna is not resolved and accountants continue with 'going concern' assumption without judging the relevance of such a postulate.

On the contrary, auditing standards in the U.S.A., Australia, Canada and New Zealand and International Auditing Standard (ISA - 23) include guidelines for the auditors to comment upon 'going concern' status. In the U.K. the recently issued Exposure Draft 130 "The Going Concern Basis in Financial Statement" has also addressed the audit issues.

In view of the above, it is desirable to muse over the 'fundamental assumption' status of 'going concern' and to suitably design an accounting standard specifying the accounting policies to be followed in various circumstances considering the degree of doubt about the reporting entity's ability to continue in the foreseeable future.

Prudence

Para 17 of AS-1 "Disclosure of Accounting Policies" states that prudence is one of the major considerations in governing the selection and application of accounting policies. The concept of prudence is amplified in the following lines :

"In view of the uncertainty attached to future events, profits are not anticipated but recognised only when realised though not necessarily in cash. Provision is made for all known liabilities and losses even though the amount cannot be determined with certainty and represents only best estimate in the light of available information".

Prudence in Foreign Currency Translation

A recently issued Exposure Draft of revised Accounting Standard — 11 "Accounting for the Effects of Changes in Foreign Exchange Rates" requires

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translation of monetary foreign currency items including those of foreign branches applying end of year exchange rate. If exchange rate of rupee increases as compared to the transaction date, there will arise exchange fluctuation gain. It is suggested to recognise such exchange fluctuation gain or loss in the profit and loss account (The Chartered Accountant, Aug, 1993).

Although this requirement conforms to the IAS-21 (revised) "The Effects of Changes in Foreign Exchange Rates", which is influenced by U.S. Standard there is a need to reconcile if the year-end change in exchange rate should be considered as "realised gain" from the viewpoint of prudence. Presently, many Indian companies only recognise loss in exchange variations in monetary assets and do not account for exchange variation gain.

Deferral of Tax Effect

Similarly, IAS-12 "Accounting for Taxes on Income" suggests deferral of tax effect if tax liability based on acounting income is lower than that of taxable income. Para 13 of IAS-12 states that "under the deferral method, the tax effects of current timing differences are deferral and allocated to future periods when the timing difference reverses". In effect, this is an arbitrary extension of accrual concept. This requirement contradicts IASC's own coneeptual framework, Para 78 of which states that "the definition of expenses encompasses losses as well as those expenses that arise in the course of the ordinary activities of the enterprise". Tax liability accrues in course of ordinary activities and is determined by applying the provisions of tax laws. In the process, taxable income and accounting income may differ. This does not really mean that tax expense has not been accrued and that is to be linked with accounting income.

ICAI (1991) has also issued a Guidance Note on the subject in the line of international requirements and a couple of Indian companies like Bitannia Industries Ltd. have already started to defer tax liability arising out of timing difference which has the effect of inflating the profit figure.

Capitalising Asset-linked Foreign Currency Loss

Part I of the Schedule VI to the Companies Act, 1956 requires adjustment of exchange variation loss or gain on foreign currency liability related to acquisition of fixed assets from a country outside India. As a consequence, exchange variation loss has been capitalised with a consequential distortion in asset value without ascertaining the current cost. AS-11 (recently withdrawn) was designed to accommodate the legal requirements.

On the contrary, IAS-21 (revised) allows capitalisation of loss in a very exceptional circumstance — "Exchange differences may result from a severe devaluation or depreciation of a currency against which there is no practical means of hedging and that affects liabilities which cannot be settled and which arise directly on the recent acquisition of an asset invoiced in a foreign currency. Such exchange differences should be included in the carrying amount of the related asset, provided that the adjusted carrying amount does not exceed the

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lower of the replacement cost and the amount recoverable from sale or use of the asset" (IAS-21).

Prudence suggests immediate elimination of exchange variation loss. Also, no valuation mode of fixed assets suggest such arbitrary adjustments.

Capitalisation of Borrowing Cost

Interest charges and commitment fees incurred during the construction period for purchase of capital assets or other capital expenditure of a project (before the commercial production starts) is capitalised. ICAI's Guidance Note (ICAI, 1991) recommends this policy looking into the Supreme Court's decision in a tax case [Challapalli Sugars Ltd. v.C.I.T. (1975) 98 ITR 167 (SC)]. However, interest and commitment fees on working capital are suggested for transfer to a separate account to be grouped under the head "Miscellaneous Expenditure".

AS-10 also suggests capitalisation of finance charge while determining historical cost of fixed assets upto the period the asset is ready for use.

Finance charge relates to financing decision and is considered as not a relevant cost of investment decision. ICAI's Guidance Note also admits this theoretical lacuna and would not have suggested this contradictory accounting policy except for practical relevance.

Recent Developments

Revision of International Accounting Standards

IASC has recently revised ten standards in an attempt to eliminate unnecessary alternatives and make the standard aceptable to International Organisation of Securities Commission (IOSC) (a list of revised International Accounting Standards is enclosed in Appendix-II). Presently, Indian Standards fall short of the international requirements on many counts, and of course, international standards also have not provided ideal guidelines in all areas.

Inventories

Large number of alternative cost formulae are in use for determining the historical cost of of inventories. AS-2 "valuation of inventories" allows use of FIFO, average cost, LIFO, specific identification method, standard cost method, and base stock method for this purpose. IAS-2 (revised) allows only FIFO and weighted average cost as benchmark treatment and LIFO as only an allowed alternative.

LIFO has the effect of under-valuing inventories cost whereas FIFO has the effect of over-valuing in an inflationary environment with consequental effect of over-valuation and under-valuation of cost of goods sold, respectively. Even IAS-2 (revised) failed to suggest the most logical weighted average cost basis. IAS-2 (revised) only suggests use of FIFO and weighted average as benchmark and use of LIFO as allowable alternative. On the other hand, adaptability of AS-2, which is considered as a flexible standard, is very low.

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Changes in Financial Position

AS-3 defines the term "funds" as cash, cash or cash equivalents or working capital. So a statement of changes in financial position propagated in AS-3 may be interpreted as either funds flow or cash flow statement.

Although professional accountancy bodies in many countries preferred adoption of funds flow statement as part of financial statements during the seventies, the eighties and early nineties saw a complete switch over from funds to cash flows since the latter reflect the liquidity state of the reporting entity in appropriate manner. Issuance of FAS No. 95 "Statement of Cash Flows" in the U.S.A., FRS No.1 "Cash Flow Statement" in the U.K., Statement of Standard Accounting Practice No.10 "Statement of Cash Flows" in New Zealand, Statement of Generally Accepted Practice No. AC118 "Cash Flow Information" are examples of such a switch over. Finally, IAS 7 has also been revised to conform to the international trends (Financial Express, Nov. 1993) To the contrary, the withdrawn Companies Bill, 1993 proposed preparation of Funds Flow Statement.

Contingencies and Events Occurring after the Balance Sheet Date

An exposure draft has been issued by the ASB to incorporate disclosure of events occurring after the balance sheet date which affect the existence or substratum of the enterprise (ED4).

Financial statements reflect past performance and financial position in the balance sheet. Life is best understood by looking backward, though, it is to be looked forward. Usefulness and timeliness of financial statement information are major issues and professional accountancy bodies of the various developed countries are considering how projections can be incorporated within the traditional reporting framework.

In view of the above, simple disclosure of events occurring after the balance sheet date is not expected to be useful. Rather it is necessary to disclose anticipated effect of such events on revenue, expense, assets and liabilities of the reporting entity.

Prior Period and Extraordinary Items

IAS 8 (Revised) classifies unusual items into extraordinary and exceptional items. Prior period items are now referred to as fundamental errors. Separate disclosure of financial information has been addressed mostly on the line of FRS 3 "Reporting Financial Performance" in the U.K.

In India, AS-5 does not classify unusual items into extraordinary and exceptional. However, there is no basic difference in the definition of prior period items followed in the AS-5 and latest approach of IAS-8 (revised).

However, if the reporting entity discontinues an operation, effect of which has been taken into account while computing profit/loss, it becomes necessary to show results of such discontinued operations separately for transparent reporting. AS-5 or any other standard does not address this issue. In the U.K. and the U.S. separate disclosure of revenue, expense and profit

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of discontinued operations is a standard practice.

Depreciation Accounting

Indian companies follow depreciation rates given in Schedule XIV to the Companies Act, 1956. Recently, the Central Government has reduced the depreciation rates conceding the argument that useful lives of the depreciable assets were under-estimated while fixing up the earlier rates. Depreciation rates given in Schedule-XIV can be applied if they work out to be higher than the rates derived using any acceptable depreciation method. It has been taken for granted that depreciation based on the rates given in Schedule XIV is more than the depreciation computed following AS-6 route without disclosure of the other rates.

Of course, by a recent amendment to AS-6, the ICAI has eliminated an important alternative. Because of reduction in depreciation rates as given in Schedule XIV, useful lives of fixed assets get automatically revised. Para 24 of AS-6 (before revision) allowed two alternatives - (a) the amortised depreciable amount should be charged over the revised remaining useful life, or (b) the aggregate depreciation charged to date can be recomputed and excess or short depreciation so determined can be adjusted. The revised AS-6 withdraws the second alternative to discourage recomputation and adjustment of excess depreciation ot profit (11).

Moreover, AS-6 does not categorically prevent the transfer from revaluation reserve to off-set the effect of additional depreciation that arises out of upward revaluation of fixed assets. So, almost all the companies revalue fixed assets to reflect their current cost but do not make a depreciation charge against profit. Rather the ICAI's Guidance Note tacitly accepts this policy as an allowed alternative (ICAI, 1982).

Accounting for Construction Contracts

IAS 11 (revised) has withdrawn the free choice between percentage completion method and computed contract method and has made application of the former compulsory if the outcome of a contract can be reliably estimated. In case, the outcome cannot be reliably estimated, no profit should be recognised. This revision discourages conservatism in revenue recognition of long-term contract.

Because of this revision, an entity has to report profit on a long-term contract the outcome of which can be reliably estimated, although revenue may be realised only on completion of the contract. Moreover, it is possible that although cost and revenue can be reliably estimated, revenue realization may not be reliably estimated. Prudence suggests not to account for profit under such circumstances. However, IAS 11 (revised) does not consider this possibility.

AS-7 still allows both, percentage completion method and complete contract method. It is desirable to frame prudential norms for recognising profit applying percentage completion method, particularly for contracts outside India,after properly considering the political risk of the country in which the

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contract is carried out.

Accounting for Research and Development

IAS-9 (revised) has removed the restriction that "development costs once written off should not be reinstated even though uncertainties which had led to their being written off no longer exist". Presently, the standard allows reinstatement of development costs when the circumstances that cause write down cease to exist.

However, AS-8 (para 14) does not allow reinstatement. In fact, R&D costs can be deferred on fulfilment of certain conditions listed in Para 9. If R&D cases are expensed because of uncertainty in one accounting period, there should be no restriction on reinstatement when uncertainties cease to exist. Such R&D costs should be treated as intangibles with effect on profit.

Revenue Recognition

IAS-8 (revised) removes the option of completed contract method in revenue recognition involving rendering of services. Likewise,in IAS-11 (revised), revenue realisation has not been made a criterion.

AS-9 still retains percentage completion and completed contract methods and does not specify provisioning norms. A prudential provisioning norm should be formulated based upon age of debtors and security/insurance cover.

In many cases, optimistic revenue recognition and profit measurement are found to cause a big liquidity threat and even danger of bankruptcy on non-recoverability of a major portion of revenue. In true sense, imprudent revenue recognition may lead to distribution of profit out of capital.

Accounting for Government Grants

Para 14 of AS-12 "Accounting for Government Grants" requires deduction of government grants from historical cost of fixed assets if such grant relates to any specific fixed asset. In case the grant equals the whole, or virtually the whole, of the historical cost, the fixed asset should be shown at nominal value. This accounting policy affects the idea of 'substance over form'. In this case, book value does not reflect properly the assets utilised for the generation of revenue.

Rather the second alternative seems to be appropriate and should be treated as benchmark policy. Alternative policy suggests treatment of government grant as deferred income which should be recognised in the profit and loss account on a systematic and rational basis over the useful life of the asset.

Accounting for Investments

Presently, investments are generally valued at cost. Even if the value of an investment declines permanently, it is not recognised as loss unless the investment is sold. In effect, this accounting policy affects the idea of prudence.

IAS-25 "Accounting for Investments" suggests classification of investments into (i) Long Term Investments and (ii) Current Investments. Current

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investments are categorised as part of current assets and valued at lower of the cost or market price. On the other hand, depreciation is provided for to recognise any permanent decline in the value of long term investments.

AS-13 "Accounting for Investments" has been recently issued by the ICAI which is to come into effect for financial statements covering periods commencing on or after April 1, 1995 (The Chartered Accountant, Sept. 1993).

Accounting for Retirement Benefits

A recently issued Exposure Draft on Proposed Accounting Standard "Accounting for Retirement Benefits in the Financial Statements of Employers" suggests —

Charge of contributions to provident fund and other defined contribution schemes as expense for the period in which they accrue as against the present practice of many companies to account for on cash basis;

In case of liability for gratuity and other defined benefit schemes, if the employer has chosen to make payment out of own fund, such liability should be accounted for on the basis of actuarial principle. This accounting policy intends to eliminate the present practice of accounting for gratuity on payment basis;

In case, liability for retirement benefits is funded through a scheme administered by LIC (or similar agency), it is necessary to ascertain whether amount paid is equivalent to liability determined on the basis of actuarial principle.

The requirements of this Exposure Draft generally conforms to the accounting policies specified in IAS-26.

Some Gaps in Standardisation

In India, standardisation lacks in at least three important areas namely, consolidated reporting, segmental reporting and related partly disclosure.

Consolidated Reporting

Section 212 of the Companies Act, 1956 requires annexation of subsidiary's balance sheet, profit and loss account, auditors' report, etc. to the balance sheet of holding company. Way back in 1952, the Bhabha Committee (The Company Law Committee) suggested this requirement and the Committee felt that consolidation might not be appropriate in Indian circumstances. The Committee opined that "The system of Group Accounts is, indeed, so complicated that its introduction in the Indian Companies Act will not result in any advantage; on the contrary , it would only result in the discontinuance of the present practice of attaching the balance sheets and profit and loss accounts of the subsidiaries to those of the respective holding companies. This, in our opinion, would be to retrograte development" (Company Law Committee, Report, 1952). Incidentally, findings of the Bhabha Committee are still considered as valid and the Companies Bill, 1993 (withdrawn for redrafting) does not consider the need for any improvement. On the contrary, the Companies Act, 1948

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in the U.K. required consolidation for the first time, based on the practice which started in the U.K. as early as in 1920 pioneered by the U.K. Noble Industries. In the U.S.A., consolidation was introduced for tax purposes as early as 1917 and New York Stock Exchange required consolidation as early as 1919. In the erstwhile West Germany, consolidation was made obligatory in 1965. Consolidation has been accepted as a standardised practice during the eighties in France, Belgium and Spain. Consolidation has become an accepted practice in Japan since 1976.

Consolidation reflects performance and financial position of the holding company and its subsidiaries as a whole. However, unless the meaning of subsidiaries is enlarged in the line of U.K. Companies Amendment Act, 1989, even consolidation may not reflect the group performance/financial position. As per the latest amendment fo the U.K. Companies, 1989 even if a company enjoys dominating influence over the other, the latter is considered as a subsidiary. Accordingly, it is necessary to find out a suitable definition of subsidiary before evolving a consolidated reporting standard (16).

Segmental Reporting

In India, Part II of Schedule VI to the Companies Act, 1956 requires disclosure by 'major classes of goods' which falls far short of the idea of providing disaggregateed information. Rather that requirement produces some unrelated quantitative and financial information without any specific objective.

Generally the disclosure of disaggregated information is centred round three major items :

* disclosure of disaggregated revenue by industry and geographical segments;
* disclosure of disaggregated operating profit by industry and geographical segment;
* disclosure of identifiable assets by industry and geographical segments.

IASC issued IAS-14 "Reporting Financial Information by Segment" in 1981. This intends to suggest disclosure requirements such that users can understand the performance of a diversified company and project accordingly. Apart from IASC, European Community (EC), Organisation for Economic Co-operaton and Development (OECD), United Nations Economic and Social Council and International Organisations for Securities Commissions (OECD) actively propagate segmental reporting by multi-national corporates.

Related Party Disclosure

Section 297 and Section 370 (1B) of the Companies Act, 1956 specify some related parties such as directors of the company, directors of the company's holding company, directos' relatives, etc.Parties are generally considered as related if one party has the ability to control the other party or exercises significant influence over the other party in making financial and other decisions.

Although the Companies Act puts restriction on related party transactions and the MAOCAR Order, 1988 requires specific statement from the

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auditors whether any related party transaction is prejudicial to the interest of the company, a detailed disclosure of related party transactions are considered necessary by various professional accountancy bodies.

IAS-24 "Related Party Disclosure" suggests that if there have been transactions between the related parties, it is appropriate to disclose the type of transactions and elements of transactions for an understanding of the financial statements. These elements would include : (a) an indication of the volume of transactions, either as an amount or as an appropriate proportion, (b) amount or apporpriate proportion of outstanding items, and (c) pricing policies.

Conclusions

The following are the conclusions which emerge from the above-discussion :

(1) "Going Concern" should not be treated as fundamental accounting assumption; rather a separate accounting standard should be formulated to prescribe valuation policy to be followed by an entity which is not a 'going concern' along with criteria of status identification.

(2) Accounting policies evolved in the standards should be based on "prudence".

(3) Flexibility and imprudent norms prescribed in the existing accounting standards may be, to some extent winnowed in the lines of revised international standards. Of course, revised international standards also fall short of winnowing the imprudent alternatives.

(4) Incongruous accounting policies embedded in the legal framework need to be eliminated to pave the way for formulating better standards in conformity with the global trends.

(5) Legal framework needs to be changed to facilitate consolidated and segmental reporting, and disclosure of related party transactions.

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International Accounting Standard Committee, *IAS -21 (Revised),The Effects of Changes in Foreign Exchange Rates.*

—— *Framework for Preparation and Presentation of Financial Statements*

—— (1991), *Guidance Notes on Accounting for Taxes on Income*

Appendix I

List of Indian Accounting Standards

	Sl.No.	Title	Status
1.	AS-1	Disclosure of Accounting Policies	Mandatory
2.	AS-2	Valuation of Inventories	
3.	AS-3	Changes in Financial Position	
4.	AS-4	Contingencies and Events Occurring after the Balance Sheet Date	Mandatory
5.	AS-5	Prior Period and Extra-ordinary Items and Changes in Accounting Policies	Mandatory
6.	AS-6	Depreciation Accounting	Amended
7.	AS-7	Accounting for Construction Contracts	Mandatory
8.	AS-8	Accounting for Research and Development	Mandatory
9.	AS-9	Revenue Recognition	Mandatory
10.	AS-10	Accounting for Fixed Assets	Mandatory
11.	AS-11	Accounting for the Effects of Changes in Foreign Exchange Rates	Withdrawn
12.	AS-12	Accounting for Government Grants	
13.	AS-13	Accounting for Investments	

Exposure Drafts

1.	AS-11	Accounting for the Effects of Changes in the Foreign Exchange Rates
2.		Accounting for Retirement Benefits in the Financial Statements of Employer
3.		Contingencies and Events Occurring after the Balance Sheet Date

Appendix II

List of Revised International Accounting Standards

1.	IAS-2	Inventories
2.	IAS-8	Net Profit or Loss for the Period, Fundamental Errors and Changes in Accounting Policies
3.	IAS-9	Research and Development Costs
4.	IAS-11	Construction Contracts
5.	IAS-16	Property, Plant and Equipment
6.	IAS-18	Revenue
7.	IAS-19	Retirement Benefit Costs
8.	IAS-21	The Effects of Changes in Foreign Exchange Rates
9.	IAS-22	Business Combinations
10.	IAS-23	Borrowing Costs

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Disclosure of True and Fair View of the State of Affairs of Companies : An Overview

Prangopal Bhattacharya *

Under Section 227 (2) of the Indian Companies Act, 1956, the auditor is required to state in his audit report whether in his opinion the Profit and Loss Account and the Balance Sheet exhibit a 'true and fair' view of the state of affairs of a business enterprise at the end of its financial year.Hence if the auditor is to sign the report which will state flatly that the accompanying financial statements, say the profit and loss account and the balance sheet, have been presented fairly, then the 'full and fair' disclosure of pertinent information should be made. But is the exhibition of the standard "true and fair view of the state of affairs" feasible and practical in the financial statements?

Full and Fair Disclosure

The Securities and Exchange Commission, U.S.A., defines disclosure as " ..... material information as is necessary to make the required statements, in the light of the circumstances under which they are made, not misleading" (Keller & Zeff. 1966).

The doctrine of 'full disclosure' tells us that the financial statements should not fail to disclose such an information the absence of which will render the statements misleading. The significance of this doctrine lies in the fact that the financial statements should reflect as nearly accurately as possible the financial facts of business operation. The duty of the auditor, as the guardian of public interest, is to see that the accounting methods and procedures have been chosen to present a given set of facts.The auditor should bear in mind that his duty is to seek the truth. And for that purpose there should not be any lapse on his part to attempt to reflect in the financial statements the financial facts of the business enterprise as nearly accurately as possible.

The principle of 'fair disclosure' does not call for the search for or the attainment of some sort of absolute truth. Such an attainment or search is not expected to be found in the practice of accounting. "Fair disclosure' means that the disclosure should be free from bias, free from dishonesty, free from sentiment and free from difficulties for the completeness of information. Nothing should be hiding or withholding, and it should be transparent. 'Fair disclosure' does require that the conventions and assumptions on which the books of accounts are maintained should be clearly stated.If any change in the basis is made, the effect of alternative convention or assumption should be shown. The principle of 'fair disclosure' tells us that the auditor should not give any opinion on a statement if he cannot satisfy himself on vital and material points.

Expectations of the Investors

In the earliest instances of managerial 'stewardship', an audited profit

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and loss account and balance sheet were very brief. Annual reports were sometimes one sheet folded over. The fact behind this was that the shareholder (or investors) were personally able to observe the handling of their property. But in view of the present change in socio-economic conditions, and the complex nature of business environment, the shareholders (or investors) are expecting and probably feeling the necessity of more information than they got earlier in annual reports.

The recent change of the economic policy of the Government of India has opened new multiplex avenues for the growth and expansion of the corporate enterprises in the private sector.Naturally an almost voracious appetite and need is visible on the faces of the investors all over India for better investment information (reliable economic data) of the enterprises in which they already have investments, or enterprises in which they are considering an investment. It is needless to say that shareholders and other investors are entitled to get the kind of financial and other information, which is material and important to judge both the operations of a business and their financial implications for the future of the enterprise. Besides, the information should enable them to assess the quality (the efficiency and ability) of the corporate management.

Auditor's Responsibility

It is a fact that the processing of economic data for the investors is a responsibility of the accounting discipline. Paul Grady (1965) observed : 'The responsibilities and authorities for accounting and financial reporting of business enterprises constitute a mosaic in which the primary responsibility and authority of the board of directors and management is supplemented by secondary responsibility and authority of the independent certified public accountants .....'. Consequently, the internal accountant and the auditor are to determine various sets of economic data that may be disclosed to the interested outsiders and the manner in which those data may best be presented. It is not surprising, therefore, that most auditors are to think deeply about the problem of the boundaries of disclosure, i.e. the question of 'full and fair' disclosure in any given situation, and the extent of their attestory responsibilities. Again, these boundaries are in a constant state of conditions that affect the 'stewardship relationship'. The auditors are to revalue constantly the extent to which the formalised reporting structure actually discloses the desired economic data.

Impediments to Expectations of the Investors

The shareholders and other interested outsiders expect that information must be quantitatively material and important. Data should give an insight into the future of the enterprise for the present and prospective investment. There should be some reflection as to the quality of management of the enterprise whose shares are avenues of investment.

Now the question that provokes substantial controversy is ..... how much can an enterprise disclose about itself? The answer to this crucial question

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revolves around three significant impediments (all of them spring from three major sectors) to the furnishing of 'full and fair' disclosure. First, there may be 'governmental classification' of information, which prevents the making of otherwise desirable disclosures, i.e. some information can be made public only within the limitations imposed by the Government. Next, the competitors may get an undue advantage if the information is made public. It may be to the detriment of both the enterprise and its shareholders. Third, there are certain information that the enterprise itself wishes to avoid giving to such other sectors of the society, viz., the government agencies including tax assessors, labour union leaders, dealers of supplies, private agencies like advertising, research agencies and trade associations.

A host of questions, most of which are the offshoots of the above crucial question arises : Should the enterprise reveal breakdown of costs into fixed and variable components ? Should the enterprise disclose the principles (methods) by which it values stock and measures depreciation ? How much 'additional" information should it disclose in footnotes to the financial statements ? Whether the inclusion or omission of a particular information contributes to or detracts from comparability ? Can the relevance of a particular type of information be decisive for all enterprises in general ? Or must such a decision be made for each entrprise in view of its unique 'circumstances'?

A Committee of the American Accounting Association once asserted that accounting information must be '..... useful in the formulation of objectives, the making of decisions, or the direction and control of resources to accomplish objectives.The utility of information lies in its ability to reduce uncertainty about the actual state of affairs of a business enterprise to the users (A Statement of Basic Accounting Theory No.2 A. A. A. 1966). Two questions again arise here..... What will assist the investor to reduce uncertainty in the decision he is about to make ? Is there any common core of information that will meet the uncertainty-reduction needs of all the investors and other interested outsiders ?

The problem of disclosure in the financial statements has a close relation to the problem of comparability of the data reported. Some questions will also arise here—how should the variables be measured to make the amount disclosed comparable to other similar descriptions ? Questions of the methods of stock valuation and depreciation charges are concerned with the measurement. Then the question will be asked as to what data are relevant to the investors in their process of choosing between alternatives, i.e. What variables are to be measured and reported ? Should the sales of the enterprise be revealed ?Should the sales and income by product line be disclosed ? All the questions stated so far confront the auditors to consider deeply in the light of the constraints imposed by the environment so that they may produce and provide the information expected and needed by the investors and other interested outsiders.

Current Environment

In India, at present, with the change of economic policy of the Gov-

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ernment and emergence of a new environment of liberal outlook, the existing private sector enterprises and foreign corporate enterprises (some of them are of multi-national magnitude) will be a large part of the economy. These enterprises will become larger and more diverse. Therefore, it is now time to examine whether the financial statements (which have undergone little change in the format or content since the introduction of the Companies Act, 1956) are adequate to meet both the present and the immediate future needs. There has been, of course, rather widespread use of the funds statement in recent years.

The Council of the Institute of Chartered Accountants of India issued Accounting Standard 3 (AS 3) on 'Changes in Financial Position' in June, 1981. The Standard deals with the financial statement which summarises for a given period the sources and applications of the funds of an enterprise. The Standard runs : A Statement of Changes in Financial Position should be published along with the annual accounts. Such a statement should be prepared and presented for the period covered by the profit and loss account and for the corresponding previous period. Funds provided from or used in the operatins of an enterprise should be shown separately in the statement of changes in financial position.Each enterprise should adopt the form of presentation for the statement of changes in financial position which is most informative in the circumstances. But if we go through the funds statements of some enterprises for a few years, it will be seen that the data included in those statements had not, in most cases, been more than what the investors might get from the balance sheet and profit and loss account. So, the question of 'full and fair' disclosure of information concerns the investors.

The Enterprise Characteristics in Attaining the Expectations of the Investors

Prof. R.K.Mautz (1968, p. 7) was once engaged in a research project to determine whether corporate disclosure of results of operation on some basis more detailed than total company figures is desirable. He found that 'maximum return in the long run from a combination of dividends and capital appreciation is the most important objective of the investors. His findings of the most important characteristics of the enterprises for attaining the desired objectives of the investors are : (i) growth potential, i.e. the growth of major markets, rate of growth in earnings per share, and research and development expenditures; (ii) managerial ability, i.e. the growth of the enterprise, the return on equity share, and the personal reputation of the key personnel; and (iii)profitability, i.e. the return on equity share, return on total assets and the ratio of net income to sales.A consideration of these findings will lead to inquire whether, of the data to which the investors have access, these are the best indicators to appraise the significant variables, or whether these are truly the necessary information to make adequate appraisals. To evaluate the present reporting practices and make suggestions for improvement, the idea of the investment objectives and the factors which are most important to attain these objectives is appealing.

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Tug-Of-War

It is a fact that the investors want and probably need more information than they now get in annual reports.To some providers of information, this appetite for information appears to be insatiable, and although the present trend has been for management and auditors to give them more information, resistance to meet this voracious appetite is natural and understandable. It is beyond doubt that some investors ask for information which should not be revealed because they have no real need for such information. Therefore, some 'pulling and tugging' between investors and providers of financial information is unavoidable and is plausibly healthy.

Comparability of Financial Statements

It is an accepted fact that comparability is much desired by the remote investors. The investors should recognise that the financial statements of two enterprises can be expected to be comparable only if the enterprises represented thereby are comparable, which may not be true. If the enterprises are not comparable, or even if parts of their operations are not comparable, then no amount of manipulation can change those facts. It should be remembered that forced comparability where no real comparability is present will be necessarily misleading. Comparability among different financial statements of different enterprises can be achieved by the establishment of uniform basic principles of accounting with specific criteria to determine when alternative accounting procedures are justified by special circumstances. But justifiable circumstances should avoid management philosophy, conservatism, or competition. Of course, in certain cases justifiable circumstances may include differences both in economic circumstances and in management policies. In almost every case following a different procedure may be justifiable owing to a difference in uncertainty. Comparability among financial statements of different enterprises as a public policy should discard the prerogative of management to choose its own accounting procedures when such choice is based on unjustifiable differences.

It is strongly suggested that auditors should describe fully the accounting principles used and the choices made in the conduct of an audit. Then only, the investors can adjust the data in order to achieve a workable measure of comparability. But this adjustment involves some problems. Investors are outsiders. If the statements are not comparable investors will not have the information needed to make them comparable. Investors can, of course, sort out such things as non-recurring items, but they cannot assess the effects of different depreciation methods, stock valuation methods, pension accounting methods etc. in a way that enables them to make statements validly comparable. Again, disclosure of principles only is not enough for the investors to do the job of adjustment. They would have to know not only the methods that have been used but also the rupee consequences of the choice of those methods and why the methods used were chosen.

The types of financial information that may be compared by the investors

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and interested outsiders are many and varied. But they should include resources and obligations, net profit for the current and past years, operating ratios, and the ability of the enterprise to pay dividends currently and in the future as evidenced by the Statement of Financial Position (Cash and Funds Flow Analysis). Comparability in each of these cases will always be more or less appropriate.

Auditors Should Take Greater Responsibility because of Management's Prerogative

Although the collection and summarisation of the basic financial data must remain the responsibility of the management, the auditors ought to take greater responsibility for the presentation of financial statements for some reasons. Undoubtedly, 'management is subject ot some pressures that make unbiased presentation difficult. These pressures spring from the fact that the financial statements reflect managerial success or failure, the desire to reduce taxes through specific accounting procedures, the desire to influence share prices to the benefit of current shareholders and the reaction from labour groups and the government (Charles, 1965). Generally, management finds little inconvenience in a lack of inter-firm comparability. Inconvenience is felt primarily by investors and the general public. Therefore, pressures to establish comparability are not likely to be generated by management (Sprouse et. al. 1965). Because of the independent status of the auditors, they are in a better position than management to evaluate whether accounting procedures selected present in a fair and unbiased manner the financial operations and position of the enterprise and whether the information presented is comparable with that of the other enterprises. To establish uniform accounting principles considerable professional judgement is necessary in the evaluation of specific criteria and the selection of alternative procedures that deviate from the recommended methods when such deviations are justified by the circumstances. The special training and experience of the auditors should make them fully qualified to make these judgements.

It is readily admitted that financial statements are reports on the operations of management. Therefore, management should not have the final authority to determine the content of the financial statements. We see that an author is not given the opportunity of reviewing his own writings. In the case of financial statements, the auditor is in the role of the reviewer. Although, management should have the responsibility for maintaining proper financial records, the final responsibility for assuring that the reports are prepared on the basis of appropriate procedures, should remain on the auditors. This will undoubtedly curtail management's prerogative in the selection of accounting procedures. Such curtailment of individual freedom and rights is accepted in our society at many places and times because of the involvement of public interest. The need for adequate comparable financial information to permit good investment decisions overrides the advantages to be gained from permitting management to retain the freedom to select its own accounting procedures.

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Auditor's Hesitation to Take Greater Responsibility

It is inconsistent that even the banks who provide short-term loans to the business enterprises, very often with mortaged security, receive much more information than do the shareholders who are the owners of the enterprises and take long-term equity risks. Like this one there are so many instances that arouse the crucial question — why do the auditors hesitate to take greater responsibility for the presentation of financial statements ? In this context the remark of C.D. Anderson (in the volume ed. by Keller and Zeff, p. 188) is noticeable : '..... the auditing firm is hired by and is reporting to management rather than to the shareholders and creditors. Many enteprises of course, ask these shareholders to vote on a suggested choice of auditing firm, but this usually boils down to mere formality. The financial statements should be more revealing and explanatory to shareholders. The statements ought literally to speak to the owners of the company, especially with respect to any year-to-year change in accounting methods. The day may well come when the outside directors choose the auditing firm, and call for a wider dissemination of the meaningful figures than now occurs. It is significant, I think, that no shareholder can interrogate a company's auditing firm, and call for a wider dissemination of the meaningful figures than now occurs. It is significant, I think, that no shareholder can interrogate a company's auditing firm, except sometimes at a shareholders' meeting.'

Reliability of the Data

One of the crucial elements to the investors and interested outsiders is the reliability of the data reported. The measurement system must be selected on the basis of its ability ot produce reliable information. It is a fact that 'without assurance of reliable economic data, the remote investor or creditor would probably not supply capital to the enterprise.' The problems concerned with the question of reliability have been stated very nicely by Charles E. Johnson (1965) " A major concern of accountants and investors today is the 'quality' —the economic relevance and inter-company comparability — of accounting information ..... Accounting measures are inherently imprecise largely because the primary measurement problem is to scale future prospects into a system of future values and then determine their present significance.'

Conglomerate Disclosure

The recently highlighted problem of appropriate financial reporting for the 'conglomerate' enterprises has been confronting both the auditors and the financial and industrial community. The conglomerate 'merger' is a means of growth through acquisition. The 'Conglomerate' may be gracefully called 'diversification' acquisitions. Here, the relative profitability of different divisions and product lines should be revealed in order to appraise the competitive tactics utilising diversification. Knowledge of the sales and operating income from different activities in which such enterprises are engaged should be available to the average investor. Again, a somewhat different type of reporting problem lies in those enterprises that have two or more segments in distinctly

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different lines of business, or under varying geographical influences, or otherwise clearly subject to different trends and risks. Whether such enterprises are consolidated or not, and even whether they consist of divisions rather than subsidiaries, the disclosure of available, pertinent information about each mportant segment requires careful consideration. Some enterprises, of course, divide their operations by major product lines and disclose the sales volume of each. Very few enterprises report in general or specific terms about net profits of one or more of these lines. This type of information is really useful to the shareholders. The management should carefully consider reporting of meaningful data about major segments of the entire entrprise.

The reporting of the profits of segments of an enterprise, of course, poses a number of questions, most of which are offshoots of the following two questions : - (i) to what extent is it necessary or desirable that additional disclosure be made; and (ii) to what extent can such disclosure be made meaningfully and helpfully ? The first question is substantially controversial. On the whole, it can be said that without product line or otherwise segmented reporting, it is impossible for the investors to make an intelligent investment decision as to a conglomerate.

The Question of Secrecy

The problem that faces any attempt to expand the amount of information provided and to increase the reliability of the data is the question of secrecy. How much data can management disclose to the external parties without hazarding the security of the enterprise ? Clearly, there are limitations upon the type of data that can be disclosed. In part, however, these data are more detailed than what are visible in the report. It is almost needless to say, however, that true secrets of any enterprise should not be revealed in any simplified report. Certainly, it is unjustifiable on the part of the shareholders to encroach upon some confidential areas like the research laboratory works with respect to future products.

'Correct' vs. 'Fair'

The comparative studies will reveal that the audit report under section 227 (2) of the Companies Act, 1956 is more or less similar to that of the audit report as per section 145 of the Indian Companies Act 1913 except the fact that the words true and correct under the Act of 1913 are replaced by the words 'true and fair'. An insight into the matter reveals that actually the word 'fair' is substituted in the Companies Act, 1956.

The basic philosophy behind the replacement of the word 'correct' by the word 'fair' can be explained thus : Under 'going concern concept' of business, the use of the word 'correct' restricts the theme of the report. Since, many of the items in financial statements cannot be measured exactly, the auditor cannot claim that the statements 'present exactly' the financial position or operating results. Again, there are some flaws that arise from the use of the word 'correct' in the audit report. The word 'correct' is not a pervasive concept

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as it does not extend to every phase of the financial statements. The word 'correct' fails to cover up or guard against those areas which can exonerate the auditors from being held guilty of negligence. For example, the auditor cannot be hauled up for wrong statement if the report is based on the entries made in the books of accounts. If the figures of over-vauation or under-valuation of assets following the desired mechanism of charging depreciation, stock valuation etc., are inserted in the balance sheet, the balance sheet cannot be said to be incorrect as they have been recorded in appropriate books of accounts. Here, though the balance sheet, appears to be correct, as it is prepared out of the recorded facts and figures, it fails to exhibit the fair picture of the state of affairs of the business enterprise, Besides, the use of the word 'correct' in certifying any figure or anything is really incorrect when the same is based on estimation. For example, depreciation charges is provided by mere estimation.

Comments on the Inclusion of the Word 'Fair'

From the dictionary meaning it appears that the word 'correct' (meaning 'true') is synonymous with the word 'true' (meaning 'correctly balanced'), Basu (1981) argues that in spite of the deletion of the word 'correct', its adverse effects ('correct of the incorrect and correct of the correct') are found to discount by saying 'true of the untruth' and 'true of the truth'. Let us clarify them. If the balance sheet and profit and loss account, which are prepared on the basis of false vouchers and documents, are certified by the auditor saying 'true and fair' ('true and correct') view of the state of affairs of the business, it is accepted as a true report (corrct report) of the untrue (incorrect) facts or happenings. Thus it appears that really 'true or truths' (correct) are being ousted by untrue (incorrect), appearing before the persons interested in the affairs of the business as being really true (correct). As to the concept of 'true' (correct') arising from true of the truth (correct of the correct) depends on its full disclosure of information. But in actual practice it does not happen. Because full disclosure does not mean always that the financial statement will exhibit all the facts, all truth. It is also a fact that the concept of 'true' or 'truth' ('correct') under the doctrine of 'disclosure' is contradictory.

It is needless to say that the use of different methods of valuation of stock and of charging depreciation will result in different figures of profit, computed from a set of accounting and financial information. These different figures cannot be said to be untrue (incorrect), because they have been computed from the set accounting rules of stock valuation and depreciation charges. Therefore, the concept of 'true' ('correct') under the doctrine of disclosure depends fully on choice approach, which varies from auditor to auditor and enterprise to enterprise. It has been nicely stated by Mr. Foster (1968, p. 43) : "When lack of opportunity to tell all the truths, any one of which could be established as a fact and is within the accepted system, the one chosen should be the most useful for the purpose for which the report is prepared ..... if inventory or stock valuation choice is available of either FIFO, or LIFO, the enterprise will probably choose the one resulting in the lower net income.".

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Although the word 'fair' has been included in the auditor's report under the Companies Act, 1956, on the ground that it is a 'pervasive concept', yet it is not free from criticisms and comments. Stated in general terms in order for statements to present fairly the financial position and results of the operation of a business, the statements must be factual, they must fully disclose all essential information, and they must not be misleading to the average reader. It must be noted that the inclusion of the word 'fair' in place of 'correct' is not sufficient, practically, to get rid of the loopholes which were found to exist previously because of the use of the word 'correct' in spite of the strong belief that 'fairness' is achieved through conformity with the generally accepted accounting principles that are appropriate in the circumstances and encompassed the reasonableness of all estimates. This will be clear if the following question is taken into consideration. ..... If the financial statements are to be presented fairly, then the full disclosure of pertinent information is desirable. Under the circumstances, explain how the concept of 'fairness' in accounting stands fairly in view of different approaches in accounting. Again, the financial statements may be prepared in conformity with the generally accepted accounting principles, but there is no guarantee that such statements should be presented fairly before the shareholders and other investors. In this context, an American case, U.S. vs. Simon can be mentioned here. In that case the court held that "even though there was evidence that the financial statements had been prepared in conformity with the generally accepted accounting principles, the crucial question was whether the financial statements presented fairly the financial position and the result of operations of the business enterprise. "Furthermore, it is certainly possible to have conformity with the generally accepted accounting principles without fairness in presentation. For example, the straight-line method of depreciation conforms with the generally accepted accounting principles, the basic principle involved is the matching of costs and revenues. But if the expected effective life of car (assumed) is related to, let us say, the number of miles it is driven than a number of time periods, then the application of the straight line method of depriciation will, undoubtedly, result in 'unfair' presentation simply because it will not present the facts in so far as they can be determined. Accordingly, under such situation, the auditor will have to reject the straight-line method as an acceptable method, because there is no such thing as a generally accepted accounting method'. As Charles E. Johnson (1966) says. "Accounting is a man-made art, not a science; it does not enjoy the discipline of natural laws, "That is why Patrick S.Kemp (Keller and Zeff,1966, p. 158.) argues : "..... accounting methods can be acceptable only if they both fit the facts and implement the generally accepted accounting principles". Although the placement of the word 'fair' in place of the word 'correct' is to some extent justifiable, but still the preservation of the word 'true' in the audit report as per Section 227 (2) of the Indian Companies Act, 1957 may distort the mental or individual faculty of the auditor who seldom works under the sweet will of his client.

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Pawns of Management

The auditors should cherish the truth that they are not the pawns of management. They should stand up to management to protect the interest of the shareholders, investors and in general the public. Let us suggest in tune with Patrick S. Kemp (1988) "The duty of the auditors, as the guardian of the public interest, should always be to insure that accounting methods and procedures are not chosen at the whim of management, but that the best available method is selected to present a given set of facts. The goal must always be to seek the truth, or in less poetic language, to attempt to reflect in the financial statements the financial facts of a business enterprise as nearly accurately as possible.

Guardian Status

The 'guardian status' of the auditor provokes some discussion. In recent times, the auditor has begun to think of himself as the adviser and advocate of his client (here 'client' refers to the management of a client enterprise). The role of adviser is quite appropriate in the management services engagements and the role of advocate is appropriate in income tax work. But it should not be forgotten that the basis of public accounting is the audit function and the resulting expression of formal opinions on client's financial statements. Therefore, the auditor is neither adviser nor advocate. In fact, his responsibility in expressing his opinion is not to guard the interest of the management, but to assure the unbiased presentation of financial facts to the shareholders and others who are interested in the affairs fo the business of the enterprise. Therefore, there is no question of selecting a particular accounting method because it is suitable, because it is advantageous for income tax purposes, or because it presents the very picture that management would like to paint. Only that method which most accurately presents the facts will be appropriate.

Social Responsibility

There is a view that the financial statements are the reports of management and that the auditor's funtion is confined to his expression of an opinion on them. The interpretation of this view is that the auditor's responsibility for the balance sheet and profit and loss account he has examined is confined to the expression of his opinion on them, while the balance sheet and profit and loss account remain the representations of the management. But in spite of the many proponents of strong maintenance of this peculiar privilege of the management, there appears to be a radical change of this outlook, and it is now recognised that the responsibility should be jointly held in order to discharge the social responsibility faithfully and to the entire satisfaction of the investors and the public.

Formal Opinion of the Auditor

Let us now examine the standard short-form report used by the auditor in order to determine just what he is saying when he renders a formal opinion. The opinion paragraph of the short-form report reads as follows :

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In our opinion, the accounts examined by us give a 'true and fair' view (a) in the case of the Balance sheet, of the state of affairs of the enterprise as at ..... and (b) in the case of the Profit and Loss Account, of the profit for the year .....

The wording of the above paragraph gives a useful insight into the auditor's responsibility in expressing such an opinion. It gives a clear case for strong, individual action on the part of the auditor as opposed to mere reliance on a set of rules promulgated by the Institute of Chartered Accountants of India, or by any other body. The opening phrase, 'In our opinion' is noticeable.

Estimates And Judgements

It is a fact that an auditor's opinion is somehow regarded as an absolute guarantee of financial health and managerial wisdom. But it must be admitted that many estimates and judgements are involved in the preparation of financial statements, no matter what accounting principles are involved. Robert M. Trueblood (Keller & Zeff, 1966, p. 30) asserted thus : "As for the auditor's opinion — and the public musunderstanding of its significance — it seems to me, we had best start explaining loudly and strongly that our opinion is nothing more or less than an opinion. What is more, it is an opinion which of itself involves many judgements. It can be argued that the words in the standard opinion should be changed or rearranged ..... and any simplification or clarification of the language which would be helpful would, of course, be desirable. George O. May (1971, p.8) observed, "..... balance sheets and income statements are largely the reflection of individual judgements". In a subsequent study, he stated, "..... the accounts of a modern business are not entirely of facts, but to a large extent, expressions of opinion based partly on accounting conventions, partly on assumptions, explicit or implcit, and partly on judgement. As an English judge commented ' The ascertainment of profit is in every case necessarily a matter of estimate and opinion". Roy A. Foulke (1968), stated that financial statements reflect a combination of recorded facts, accounting conventions and personal judgements, and the judgements and convetions applied affect them materially. The soundness of the judgements necessarily depends on the competence and integrity of those who make them and on their adherence to the generally accepted accounting principles and conventions. Auditors, themselves, depending on this policy, training, experience and practice, differ in how they would report the condition of a particular business enterprise as of a given date. At times, it has been found that even senior supervising accountants of an audit firm had performed their audit works in an unfortunately inefficient and ineffective manner. There have also been cases where auditors had seemed to miss or to overlook vital information in the preparation of their audit works or in their examination of financial statements.

In this context, report on investigation in the matter of Mckesson & Robbins, Inc., is noticeable. There is wide spread feeling in the profession that an auditor, like a physcian, should be allowed to conduct his audit work

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in his own way. The auditors have strongly supported their right to place their individual interpretation upon accounting problems, and to treat their relations with clients on a confidential basis. At times, individual auditors and firms have failed to realise that their very actions were of wide interest to shareholders, creditors, investors and others who are interested in the affairs of the business. In a very broad way, auditors are trustees of business knowledge and information. They should be and many auditors are, in fact, very practical everyday philosophers of business activity. If auditor is to render an 'opinion', then logically he must make up his own mind, not depend on a set of 'rules' to do it for him. But a defensive position soon becomes untenable and the auditor finds himself following the wishes of his client rather than his own professional judgement. A typical comment of an auditor was something like this ..... "my client wishes to use LIFO. Though I think this method will not give a reasonable result in his case, still how can I interdict him not to follow LIFO when it is an acceptable method ?" The answer to this question is very simple, " there cannot be any such thing as an acceptable accounting method. It must fit the particular situation before it is acceptable in that situation".

Roy A. Foulke (1971) said, "Accountancy, after all, is not an absolute science with unchangeable laws but a relative one in constant evolution to serve the changing needs of a business enterprise. Besides, accounting has inherent limitations". If the LIFO method fails to result in a fair representation on the balance sheet and profit and loss account in the above case, the auditor cannot honestly render a report which states, "In our opinion ..... " After all, the auditor is a professional man rendering a professional opinion. If the statements covered by that opinion are to be relied upon, it must be a professional opinion, and it should never be affected by the natural biases of client management.

Investors, Accounting Principles and Financial Statements

Accounting is a method of description of business, financial, and frequently, other facts. So the auditors must understand what they are describing before they can make intelligible statements about it. Accounting procedures, methods and techniques are many and varied. These are constantly changing and developing. But accounting principles (of course, with one exception) have not changed since accounting took on the characteristics of a profession. It is a fact that many of them who require financial reporting — shareholders, other investors, creditors — have little or no accounting background. And understandably, the question arises how many of them can comprehend very well what the auditor intends to convey when he talks about accounting principles ? But most importantly, the question that arises again is how far, apart from some dedicated auditors, will really be with respect to the common goal of improved financial reporting for which all auditors are striving ? Again, the question arises why so much comment and criticism about accounting principles ? One clearly perceptible cause is the oft-mentioned growth in the investment market and, correspondingly in the number of shareholders. Another

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cause is one or two misconceptions which the auditors may have aided and abetted themselves.

One misconception is as Robert M. Trueblood (1966, p.30) observed ..." The idea that financial statements are simply an enlarged version of man's counting up the small change in his pants-pocket".Another misconception is that the auditor's opinion is somehow regarded as an absolute guarantee of financial health and managerial wisdom. Therefore, it is essential to explain what the real meaning of financial statement is. The observation of Robert M. Trueblood (1966) is also noticeable in this respect : "while financial statements are indispensable to our society, such statements are in fact compressed quantifications, in terms of money, of properties and relationships that are not always quantifiable. The financial statements usually appearing in annual reports are all-purpose, summary statements. Some users must come to recognise that all of the data they want cannot be found in a single set of summary statements and that they must go elsewhere for at least some of the information they require".

Product Line Reporting

At the conclusion of our discussion, some observations with respect to product line reporting may be presented. The typical demand for this type of information raises the question whether it is desirable for business enterprises to diclose sales and profits for specific product lines ? The answer to this question lies under many problems involved in developing and reporting sales and profits by product lines. A series of questions confront these problems : (a) What does 'product line' mean ? (b) What profit, gross or net, is to be reported? (c) What is the effect of absorption or direct costing thereon (d) What is the effect if costs are accounted for by by -product costing ? (e) What recognition will be given to standard costs ? (f) What is to be done with allocated as opposed to direct costs ? and (g) What is to be done with period as opposed to inventoried or capitalised costs ?

A contemplation of the possible answers to the above questions reflects so many hazards to be faced in attempting to disclose sales and profits by product line. Evidences suggest that such disclosure will have serious implications in a competitive market. Such information will give some competitors (large profitable enterprises) a real market advantage. Again, in this context profit should mean net profit after taxes, and this will really dredge up problems of allocating period costs. Further, in some industries, reporting of such information may cause a breach of security requirements. Another difficulty to be considered is the time value of money to be allocated to the products made. Some products may require considerable time in manufacturing as well as extensive warehousing procedures, whereas other products may be manufactured only on order, require no warehousing, and requiring funds only for a short period.

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Conclusions

To sum up, the drafting of financial statements and their footnotes is a delicate art in itself, involving as it does not only what must be shown, but also what is best left out. This aspect, undoubtedly, involes a very high degree of expertise developed out of education, research and experience. This aspect also requires on the part of the auditors, a high degree of integrity, competence and social responsibility.

It should also be admitted that many auditors concern themselves with the problem of the boundaries of discolsure — the question of what constitutes, in any given situation, 'full and fair' disclosure — and the extent of the auditors' attest responsibilities ? It should be recognised that any general impression clearly conveyed by the statements should be a true impression. The statements, though technically correct, should avoid creating a false impression on the mind of the shareholders and other investors. And no information should be omitted which, if disclosed, would materially alter the impressions given by the statements.

Above these suggestions looms the responsibility of the auditors to guard the interest of the shareholders and the others who are interested in the affairs of the business enterprise, through assuring that financial statements, say profit and loss account and balance sheet, exhibit the 'true and fair' view of the state of affairs of the business enterprise.

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Impact of Globalisation on Accounting

Indrajit Dhar *

Accounting is a means to serve the needs of certain members of our society.With the change in the economic environment, needs of the members also change.Accordingly, accounting is to adjust to meet the need of the users.For instance, in the middle ages i.e., agricultural era, double entry system was considered as sufficient as it was able to control the goods at the disposal of the traders and it helped in providing information on the dues to the creditors or from debtors.But with the advent of machines, huge amount of capital was required to be invested; and collective capital instead of sole proprietor's capital was required to provide such huge investment.The separation of ownership and management created a situation where reporting on stewardship became inevitable.That is why, the system of corporate form of accounts developed.At the later stages of this era the boundaries of accounting have extended to serve the needs of the creditors and managers for more detailed information.Thus developed the other aspects of accounting referred to as management accounting and cost accounting (Horngren,1990).

But after the end of the industrial era, we have entered the information era.In this era, two primary forces have and will alter the economic concept of value, demand, supply and production.These two forces are globalization and information technology.What does globalization mean? Globalization means interaction of the world economy, so that there will be global market concept with free movement of goods and services from one part of the globe to other. "Specifically competition will shift from producing more and more commodities for larger and larger markets to offering better and better products for specific market niches" (Choi, 1993).

The newly industrialized South Asian countries like China, Japan, Korea, Singapore and Thailand are emerging as the newly developed economy controlling the worlds' commodities production (Choi, 1993).Thus there is an end of United States policy domination and the joining of United States with the new power blocks of Asia and Europe.So we have a more powerful GATT treaty, resulting in opening up of the economy of all the countries.This process has resulted in the entire world becoming more and more of a closer economic fraternity.Globalization and continued advances in information technology have brought about the following new developments (Choi, 1993) :

1) Growing importance of intangible assets like knowledge, innovation and learning capacity.Information about intangible assets rather than tangible assets itself will be of prime importance.
2) Radical changes in the economics of production and distribution.
3) Vertical integration will not be considered efficient and real time global linkages will lead the system where the job or portion of job will go to the concern who can do the job best.

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4) Explosion of entrepreneurship throughout the world. Adversaries will be replaced by co-operative global linkage through business combination, joint venture etc.
5) The massive specialised staffs will disappear. Firms will subcontract the services or job to external vendors having global linkage.

All these developments will affect first the organisational structure and hierarchical organisation will become much flatter.

The accountabilities to stake-holders should be rethought. At present we are pre-occupied with owner's, creditor's and management's information needs. "In the information era, customers, suppliers and employees are increasingly important constituencies" (Elliot, 1991). Existence of a system of measurement is indispensible for efficient discharging of all significant accountabilities. The emerging needs of these developments may include the following (Elliot, 1991) :

a) Measurement of both financial as well as non-financial lead indicator's like organisational learning capacity, quality, productivity, responsiveness and customer satisfaction.
b) Nature of information era assets would be knowledge, innovation and learning capacity and such assets must be included in the information era balance sheet.
c) Accounting would change its system so that it can relate past or cause-to future-or effect. Management needs real time measures instead of event measures after the events.
d) Stability assumptions regarding measurement system would change since environment is fast changing. Measurement for new key drivers should be incorporated and measures must report not only rates of activity, but rates of change in rates of activity.

India has also joined in the information era and started her new phase of globalization with various structural reform measures and policy of opening up of the economy having already been taken (Malhotra, 1994). After signing of 'General Agreement on Tarrifs and Trade' (GATT) in April 1994, the process of globalization has attained a new reality.

This paper attempts to identify the effects of these new developments on Indian economy and to relate these developments with accounting. Specifically, what would be the future of accounting and what may be the effect of such developments on accounting i.e., corporate accounting and decision making process? Part I presents a bird's eye view of the challenges and opportunities of globalization from national standpoint and Part II provides a brief analysis of emerging reporting requirements and changes that already took place. While Part III provides an outline of the consequent probable changes in the decision making, in respect of investment decisions and financing decisions, Part IV presents a brief analysis of changes in decision making tools at operational level.

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I

Challenges and Opportunities of Globalization : Case of India

Let us examine the most likely impact of globalization on Indian economy.It is too early to draw such cost and benefit analysis.But it will not be out of the context to jot down the opportunities that may be reaped from globalization and challenges and risks that we are to face and shoulder because of globalization.The benefits may emanate, if the opportunities are properly utilised.Let the benefits be described symbolically.The possible benefits may be denoted by B_i, where i = 1,2.....n. Some of the important benefits may be identified as follows (Dave, 1994) :

B_1 = Possible boost to Indian exports due to the opening up of market in industrial countries.Possibility of export prospects mainly emanate in the following industries viz,agricultural product, fisheries, sea-food processing, horticulture and vegetable meal products.

B_2 = Possibility of export of textiles and allied products after gradual phasing out of quota based multi-fibre agreement during the decade 1995-2005.

B_3 = More foreign collaboration and foreign investment in different sectors, resulting in an increase in exportable surplus.Possibility is there due to lower cost of fabour in India.

Thus total benefits may be represented as summation of all the benefits accruing during a period.Symbolically, sum of the benefits may be stated as

$$\sum_{i=1}^{n} B_i$$

Where B_1 , B_2 ..... B_n are the benefits accruing from globalization.But all the benefits will not accrue evenly during a single period.In such a situation the present value of such benefits accruing in different future periods are to be gauged.If the periods are presented as 1, 2, 3 ..... m, then B_{11} represents benefit B_1 accrued in period 1. In total,

$$\sum_{k=1}^{m} \sum_{i=1}^{n} B_{ik}$$

represents total benefits, where, $B_{11} + B_{21}$ ..... $+ B_{n1}$, ..., $B_{1m} + B_{2m}$ + ...B_{nm}. are the various kinds of benefits of gloalization in periods 1, 2, 3, ...m.

Globalization poses also challenges and risks.These challenges if not coped with rightly, may entail the risk of higher cost to the country.Some of the possible costs may be summarised and presented symbolically as follows, where C represents cost (Sengupta, 1994).

C_1 = Disproportionate allocation of credit to different sectors and poor allocation of credit to priority sectors due to possible entry of foreign enterprises in banking sector, thereby increasing economic disparity.

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C_2 = Restriction on transfer of technology i.e., stricter intellectual property rights through highly restricted patent regime covering a much wider area and much longer period.

C_3 = Increased use of modern capital intensive and sophisticated technology creating loss of employment.

C_4 = Widening technology gap between the developed and less developed countries due to discouragement of free flow of technology and thereby monopoly position in product and process are being secured by existing technology rich countries.

Thus total cost of globalization may be represented as

$\sum_{i=1}^{n} C_i$ where, $C_1, C_2 \ldots\ldots\ldots\ldots C_n$, be the cost of globalization.

As such costs do not arise at a time, present values of these costs are to be computed.Hence, the total cost for periods 1 to m may be presented as.

$\sum_{k=1}^{m} \sum_{i=1}^{n} C_{ik}$. Where, $C_{11} + C_{21} + C_{31} \ldots\ldots + C_{n1}$ be the various costs of period 1; and $C_{12} + C_{22} + C_{32} \ldots\ldots\ldots + C_{n2}$ be the various costs of period 2. etc.,

Net present value of gain/loss from globalization can be represented as

NPVG = PVB - PVC

Where, PVB = Present value of benefits

PVC = Present value of costs.

NPVG = Net present value of gain/loss.

$$\text{or, NPVG} = \frac{\sum_{k=1}^{m} \sum_{i=1}^{n} B_{ik}}{(1+r)^k} - \frac{\sum_{k=1}^{m} \sum_{i=1}^{n} C_{ik}}{(1+r)^k}$$

Where, r is the rate of discount and other symbols signify as before.But we have little option of rejecting golbalization after considering such costs and bnefits analysis.The Indian Government can only minimize the social costs of globalization after redefining the role of the State in this environment.Moreover, we should make use of the opportunities available from globalization in a right way so that we can maximize our benefits.It requires changes in the work culture of employees as well as changes in the attitude of the government, bureaucrats, the management and professional bodies.

Impact of Globalisation on Trade and Industry

The globalization has its impact on trade and industry. International trade laws, production processes, consumption pattern have been changing to meet the requirements emerging from globalization.India is not an exception. Some of such impacts may be outlined below (Ganapathi subramanium, 1994).

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i) Opening up national barriers and consequent enhancement of global competition;
ii) Necessity for improved efficiency and reduced cost arising from demand for uniform and better quality of products and services;
iii) High technological development leading to greater obsolescnce;
iv) Shortening of product-life cycle from 30 years to 10 years due to keen competition and rapid but unexpected technological development;
v) Spread of production and business centres set up by Indian companies across the globe; and
vi) Globalization of financial capital market, providing access to international investors through Euro-issues.

Proper utilisation of such situations in our favour requires changes in corporate laws, modification in the concept of accountability, provision for better and quick investor service, greater transparency in disclosure practices and decrease in the importance of attestation function on the one hand and renovation in management styles, internal reporting system and introduction of modern tools and techniques of decision making on the other.

II
External Reporting Requirements and Changes

In India, at present, the Companies Act, 1956 regulates corporate accounting process as well as its attestation. But in the environment of liberalization and globalization of Indian economy, the present provisions in the Companies Act, 1956 are not considered adequate to make accounting information reliable, relevant and comparable with international corporate acounting practices.So there is an urgent need to change present corporate accounting regulations and to assimilate all types of regulations emanating from different sources in a single coherent framework.

Analysis of Changes

The Companies Bill, 1993 (India) in the line of the English companies Act, 1985 (Section - 4, para -9) proposed that generally accepted accounting principles must be followed by every company in drawing its account.

Schedule XII of the Bill gives the format of balance sheet as well as general instructions and accounting principles to be followed.The accounting principles and concepts like going concern, consistency, conservatism and materiality are proposed to be mandatory in preparation and disclosure of corporate accounts.Moreover, Clause 326 (3) of the Bill provides that a statement of accounting policies adopted in preparation and the presentation of the balance sheet and the profit and loss account shall be disclosed along with financial statements.

The Government, after globalization, felt that users of published financial statements are gravely in trouble due to the proliferation of different sets of practices regarding various accounting issues.To have a comparable financial

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disclosure of accounting information, the need of mandatory "accounting standards" is also highly felt.It is proposed that accounting standards issued by the Institute of Chartered Accountants of India (ICAI) should be given statutory recognition.

Suggestions

In the Bill no clear cut definition of accounting standards has been given.Instead, an attempt has been made to recognise accounting standards issued by the ICAI.Since all standards issued by the ICAI are not mandatory for the members, it will be better if it is precisely clarified in the Bill itself which standards will be mandatory.As, with the opening up of the economy, foreign investments are flowing in and Indian companies are going abroad, it would be better if International Accounting Standards (IAS) are made mandatory instead of national accounting standards.Because the founder of the International Accounting Standards Committee recognized that the users of published financial statements, especially those of multinational enterprises, are seriously hindered by the proliferation of different sets of national accounting standards (Companies Bill, 1993).

Although it is not possible and desirable that companies give future projection in their annual report since future projections are purely estimates and it is very difficult to authenticate such statements (Chitale, 1989), a statement showing projected figures and actual performance may be annexed to the annual report.Publication of comparative statement may be made mandatory for the companies which have already raised capital from the primary market.

Such publication will be of immense help to the investors for following reasons : (i) Investors can evaluate how far the projections made earlier in the prospectus are achieved. (ii) Whether or not the projected items were exaggerated and the areas where actual performance falls below the projected figures can be identified, (iii) If the promoters' claims are found to be false, the investors can identify them and will not subscribe to isues floated again by them. (iv) This provision will make the concerned promoters, lead managers and merchant bankers more cautious and practical in their approach at the time of projecting the financial prospects.

The concept of social responsibility has added new dimensions to our corporate life.These structural reforms may involve some social costs and social benefits.Prospects of rapid economic growth arising out of globalization may entail some social costs like more and more environmental pollution, employee-stress, etc.However, it will accrue also social benefits in the form of higher production, larger foreign exchange earnings and developed standard of living.Similarly, the activities of a corporation will have more and more impact on society.A report containing all the social benefits and social costs resulting from an entity's activities in terms of money similar to what is stated in Seidlers or Abt's "Social Balance Sheet" (Maheswari, 1990) model may be incorporated in the annual report.

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It has been found that significant association exists between the investment value of a company's share and its social performance.Spicer (1978) showed that investment values in terms of profitability, size etc. strongly correlate with the corporate performances on one key social issue i.e., pollution control (Spicer, 1978).So it may be a pointer to the proposal of measuring and reporting on companies' performance with respect to issues of social concern such as environmental protection, racial discrimination, product safety etc.Information on corporate social performance should be disclosed in the financial report in the interest of the firms, because investors' emphasis on such issue is gaining momentum.*

III
Probable Changes in Internal Decision Making Process

Areas of Decision Making

Management uses accounting data for a wide range of financial decision making processes.Investment decisions, dividend decisions and financing decisions constitute a major part of such issues (Pandey, 1979).As globalization has changed the environment where the firms operate, the current approach of taking such decisions may not be found to be appropriate.Impacts of globalization on the two broad areas, viz, investment decision and financing decision require some analysis.Another area of concern is planning and controlling the organization efficiently and effectively.Budgetary control and standard costing may be of help to the management in this regard.But globalization may have impact on these two areas too.Let us have a look into these matters.

Investment Decisions

Investment decisions relate to allocation of scarce resources and involve judgement as to engaging funds to long term assets which, it is expected, would yield benefits in future.Because of the uncertainities in future, such decisions involve risk.Moreover, a standard rate against which the expected return on new investment can be assessed is to be selected.As the economic environment changes because of new trade policy, the techniques and assumptions underlying such decisions require a close scrutiny.With the adoption of liberalised economic policy, it is expected that there will be abundant inflow of foreign investments and advanced technology (Kumar, 1994). But that will lead to rapid obsolescence of processes and products.Let us examine the effect of such factors on each method of capital budgeting appraisal, viz, (i) Pay Back Period (ii) Accounting Rate of Return and (iii) Discounted Cash Flow.

(i) *Pay Back Period Mehod* : This method emphasises the quick recovery of original cash outlay invested in a project.Pay back period refers to number

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* Developments all over the world as to social performance reporting are better compared with their Indian ounterpart.Inspite of certain difficulties in measuring and reporting on social activities, various countries including Germany, Sweden, Spain, Japan, Australia and USA are trying hard to develop suitable methods for meaningful disclosures (Maheswari, 1990).

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of years by which original investment is expected to be recovered.Symbolically, it can be represented as below :

$$P = \frac{C_0}{C}$$

Where,

P = Pay back period,
C_0 = Initial cash outlay,
C = Annual cash inflow (assuming even cash inflow)

Product life-cycle is likely to be shortened with the growth of keen competition arising out of globalization and technological advancement (Ganapathisubramaniam, 1994). Supposing L is the life of the project at pre-globalization period, the revised formulae after globalization may be written as :

$$P' = \frac{C'_0}{C'}$$

Where,

P' = Pay back period after globalization
C'_0 = Cash outlay in the post-globalization period
C' = Annual cash in flow in the post-globalization period

As L is greater than L', P must be greater than P'. Thus, pay back period in the post-globalization period must decrease from the level at pre-globalization period, with a view to recovering the investment in the project.It would be possible when C', i.e., annual cash inflows are higher than C, as that will result in lower pay back period.Thus, with the short product life cycle, net cash inflow or profitability of the project should increase to such a level that the initial investment would be recovered.Profitability again depends on the combined effect of the rate of margin and volume of sales.Either of the two may not increase simultaneously but the combined effect of them should enhance to have increase in profitability.Keen competition may decrease the rate of margin, but because of expanded market the volume of sales is expected to increae manifold to make up the gap.Any way, this method is expected to draw greater attention of the decision maker even though it suffers from the weakness of non-consideration of cash inflows generated after pay back period and timing of cash inflows.

(ii) *Accounting Rate of Return Mehod* : Unlike pay back period method, this one emphasises the average rate of return, expected to be derived from a project over its effective life.Here recovery of initial capital is not of prime importance.After globalization, the economic life of the projects, it is discussed earlier, would shorten due to decrease in expected life cycle of the product.The impact of such change on this method may be examined as below.

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Symbolically, accounting rate of return can be described as below.

$$R = \frac{PAT}{\frac{n}{C_0}} \times 100 \quad *$$

Where,

R = Accounting rate of return.
C_0 = Initial investment.
n = Life of the project in years.
PAT = Total profit after tax over the life of project (annual).

Decrease in n, after globalization will have adverse impact on profit.Firstly, due to decrease in life of fixed assets, annual depreciation will increase, consequently yearly profit would decrease.Secondly, profit over the life of the project as a whole would be less than what was expected from the project in the pre-globalization period.It is so because profits would accrue for less number of years of the project life.The impact of these two aspects on average profit would depend upon expected decline in n i.e., life of the project.So the accounting rate of return which was acceptable at pre-globalization period would not be so at post-globalization period.Expected increase in R should be sufficient to compensate this negative impact.If it is assumed that there would be no change in the C_0 for the time being, the formule for accounting rate of return after globalization may be written as

$$R' = \frac{PAT'}{\frac{n'}{C_0}} \times 100$$

Where,

R' = Accounting rate of return. (after globalization)
n' = Life of the project in years at post-globalization period.
C_0 = Initial investment.
PAT' = Total profit after tax at post-globalization period (annual).

Now if PAT' < PAT and n' < n at post-globalization period, R' must be less than R.But such a situation would not be acceptable. R' must be greater than R to compensate decrease in n. It would be possible only if the PAT increases.It is possible with the combined effect of an increase in contribution margin and of sales. Again, keen competition may make it difficult to increase unit sale price.Symbolically, the situation may be discussed as follows.

$$(S - M)\, q = C_0$$

Where,

S = Unit sale price.
M = Marginal cost price.
q = Quantity sold.
C_0 = Contribution.

If it is not possible to increase S, other possibilities to improve profits i.e., increase in volume of sales q or decrease in marginal cost, i.e., M should be explored.Hence projects should be selected in such a way that the products

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* Alternatively C_0 i.e., initial investment can also be used as denominator.

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should have huge demand in the inland market and there should be possibilities for export, so that annual volume of sales enhances.Otherwise, the firm has to control the cost effectively to have higher margin.All these will lead to increase in PAT as well as in R when other variables remain constant.The industry average rate of return and or cost of capital should also be considered while fixing the desirable accounting rate of return (Pandey, 1979).

(iii) *Discounted Cash Flow Methods*: "Time value of money" or timing of cash flows is considered here as the basic criterion for selecting investment projects.According to this method, management is to select either a standard or *hurdle rate* at which future cash infows are to be discounted or a time adjusted rate of return on investment is calculated first.Then net present value is found out by deducting present value of cash outflows from the present value of cash inflows.This method is called net present value method (NPV).Under the second method a rate is found out which equates the present value of cash inflows with the present value of cash outflows of an investment.This rate is called internal rate of return (IRR). After calculation of IRR it should be compared with expected rate of return to decide on acceptability of that project whereas, under former method, if net present value is positive, a project is accepted.

Globalization may have varying impacts on different variables, viz, cost of capital, expected rate of return, timing and magnitude of cash inflows and cash outflows, These impacts may be analysed as below.

The formulae for the net present value method, (assuming that all cash outlays are made in the first year) may be represented as,

$$NPV = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \text{-------} + \frac{C_n}{(1+r)^n} - C_0$$

or, $$NPV = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t} - C_0$$

Where, C_0 is the initial cash outlays, C_1 , C_2 ..... C_n represent cash inflows, r is the discounting rate and n is the life of the project.On the other hand, when

$$C_0 = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

r is the internal rate of return and net present value is zero.The impact of globalization on different variables may be as folows :

1) n will decrease as, it is observed earlier, the product life cycle would be shortened.
2) C_0 i.e., initial capital investment will go up, as the capital intensity of the project will enhance.Need for better quality products, introduction of improved technology and need of cost reduction will make the

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establishment of heavily capital intensive projects indispensable (Ganapathisubramaniam, 1994).

R will also not remain unaffected.But for the time being, it may be assumed to remain constant.If these two variables alter, the formulae for calculating net present value would take the following shape :

$$NPV' = \sum_{t=1}^{n'} \frac{C'_t}{(1+r)^t} - C'_0$$

Where,

- NPV' = Net present value at post-globalization period.
- C'_t = Cash inflow at period t and t = 1, 2, 3....n.
- n' = Life of the project at post-globalization period.
- C'_0 = Initial cash outlays for the project at post-globalization period.
- r = rate of discount.

Hence, the internal rate of return i.e., r in post-globalization period may be determined in the following manner :

$$C'_0 = \sum_{t=1}^{n'} \frac{C'_t}{(1+r)^t}$$

Where all the symbols signify as before, if n is greater than n' and C'_0 is greater than C_0 the net present value and internal rate of return will decline from that of pre-globalization period in the absence of corresponding increase in annual cash inflows, i.e., C_t. Thus after globalization, acceptability of a project requires increase in net cash inflows over the life of the project if there is no change in expected rate of return.Now let us examine the impact of globalization on expcted rate of return and cost of capital.

Globalisation, Cost of Capital and Expected Rate of Return

Selection of investment projects under both the NPV method and IRR method requires information on the desired rate of return.Basically two major factors are to be considered in determining this hurdle rate : (RBI, 1994).

a) One factor relates to rate which reflects the performance of the company or the industry to which it belongs.This rate is the function of the factor internal to firm and / or industry.

b) The other rate, popularly known as the company's "cost of capital" refers to the rate at which the firm can collect fund from the market to finance its projects.Hence this rate is dependent on the factors external to the firm.

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Cost of capital signifies that a minimum level of profit is to be earned so that the suppliers of capital can be provided with a return at the market rate.Globalization has its impact on capital market, which in turn affects this 'cost of capital'.Cost of capital again is comprised of mainly two components: cost of debt capital and cost of equity capital.The former will decrease from that of pre-globalization period, since lending rates charged by the banks, financial institutions and other funding agencies are most likely to come down (RBI, 1994).On the contrary, proportion of shareholders' equity will increase (Chatterjee, 1994), due to expanding scope of raising fund through Euro-issues, emergence of equity-cult among Indian investors and similar other factors.Again, decrease in rate of interest and proportion of debt capital have their influence on average cost of capital.Intensity of such influence will depend upon how the cost of equity will behave in the post-globalization era.Now let us examine the effect of globalization on cost of equity capital, which is basically influenced by share price of a firm.Market price of shares, in turn, depends to some extent, on the earnings per share. Importance of such price is usually compared with earnings through an indicator which is popularly known as price earnings ratio (P-E ratio).The rate signifies the investors' preferences on individual shares (Hampton, 1989).Higher the ratio, higher the impact of factors other than profit on such prices.The impact of globalization on this ratio requires a close scrutiny. The present scenario of Indian stock market is such that price earnings ratio is relatively high due to factors like imperfection in the information about the market, unusually high expectation about the growth in share prices and similar factors.On the contrary, P-E ratio is low on average in the international capital market (Economic Times, Dec 15, 1994). After globalization, foreign investors, it is expected, will come to invest in our stock market.But they cannot expect high growth in share prices without a simultaneous growth in earnings per share.Instead, higher growth potential of Indian firms will attract them for various reasons.Huge untapped market in India, low labour cost, investment potential in core sector by foreign direct investors, unutilised resources, etc. are the major factors for such attraction (Kumar, 1994). In such a situation earnings per share is expected to increase, but a corresponding increase in market pice of shares will not follow.Thus there will be a tendency that P.E. ratio will come down gradually towards the global average from the present position.

In the above situation decrease in share price will enhance the cost of equity capital, creating an adverse effect on the firm.The simultaneous increase in the cost of equity and the proportion of owned capital will nullify the favourable effect of decrease in cost of debt capital.Consequently, average cost of capital is expectd to exceed its counterpart prevailing at pre-globalization period.It demands and increase in expected rate of return (i.e., r) from the project.

To sum up, globalization will create a situation where increase in operating efficiency is indispensable.Such efficiency can be represented through higher expected rate of return.

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Globalisation and Corporate Capital Structure

Another important area in the corporate field relates to capital structure of a firm Let us analyse how globalization acts on corporate capital structure.

The decision about sources of finance to be tapped depends on two factors, viz, the return on investment, and the cost of capital of the specific sources of finance.Earlier, it is argued that the firm can lower its cost of capital and increase the earning per share through judicious use of leverage (Durand, 1959).So previously, debt financing was considered unavoidable for a project.In such a situation higher proportion of debt capital was considered necessary to magnify the rate of return on equity.

Moreover, the investor community was classified into two groups : risk aversers, who are interested in return for waiting only, and risk takers who are interested in return based on risks only.Earlier, the former group of people constituted the majority of the investor community. But after globalization, the financial market scenario has changed.Because of integration of financial market at global level, the scope of equity based financing has increased (Chatterjee, 1994).So the proportion of debt capital is decreasing day by day.It is evident from the following innovative issues in the capital market (Sailesh, 1994) :

a) Euro-issues in the form of global depository receipts (GDR) and foreign currency convertible bonds (FCCB),
b) Zero-interest convertible bonds,
c) Partly and fully convertible debentures, with various options,
d) Private placement of shares to mutual funds and financial institutions,
e) Secured premium notes (SPN) with detachable warrants.

The earlier theories of capital structure will lose their relevance gradually.Concepts like capital gearing, leverage and debt-equity ratio will lose their significance in this changing capital market scenario.Various factors are responsible for such change in the attitude and means of financing.Some of the reasons may be cited here.

i) Emergence of equity-cult among large number of people due to improvement in the economic condition of common investors and influx of risk-takers;
ii) Brighter economic prospects of firms now than that existing in the pre-globalization period;
iii) Easy and immediate availability of particulars on corporate financial activities in the international and domestic market.
iv) Efficiency in operating stock markets and increase in the scope of screen-based trading and investor-friendly attitude of the regulatory bodies (Pandey, 1993).
v) Easy and free access to different information, which reduces the scope of earning from the ignorance of others and encourages common people to earn through risk-taking.

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The current position of the capital struture alongwith expected capital structure of firm after globalization may be presented as below.

Capital structure at **Pre-globalization Era**	Capital structure at **Post-globalization Era**
BALANCE SHEET	BALANCE SHEET
Liabilities	Liabilities
Share Capital	*Share Capital* *
Reserve & Surplus	*Reserve & Surplus*
Internal accruals	Share premium
	Internal Accruals
Secured Loan	*Secured Loan*
	Convertibles
Term loan	Debentures/Bonds
	Secured Premium Notes
Cash Credit	Foreign Currency Bonds
	International Supplier Credits
Unsecured Loan	*Unsecured Loan*
Current Liabilities and Provisions	*Current Liabilities and Provisions*

Sources of short-term financing will also change after globalization.The traditional source of short-term financing i.e., trade credit will not be the only source.Now new money market instruments like commercial paper and debt securitisation will be more popular (Kamath, 1993). Commercial papers consist of unsecured short-term negotiable promissory notes sold in the money market. It is generally cheaper than short term business loan from the commercial banks.Since 1991, factoring, a new type of financial service is provided to business concerns.The system arranges for providing offers of a very flexible mode of cash generation against receivable (Deolalkar, 1993). The system is not a new mode of financing since commerical banks also provide finance against receivables in various forms like purchasing/discounting of bills and granting overdrafts.The peculiarity of the system is that it provides many other related services like administration of clients' sales ledger, provisioning of pre-payment against the debt purchased, collection of debt purchased and covering the credit risk involved.

Thus, it is evident that the traditional tools of financing decision like, capital gearing, debt-equity ratio and leverage are not likely to be considered sufficient for meeting the challenges of the post-globalization period.

The rate of return on investment will not also be the only controlling factor. Instead, at the micro-level the following basic issues will be

* Includes GDR issues

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significant.They are : selection of the best from the new alternative sources of financing, ensuring of cost effctiveness of capital; maintaining controlling interest in the hands of the equity shareholders, tax issues relating to 'Euro-issues' at four stages i.e., interest payment, dividend payment, conversion stage and disposal stage; awareness about the developments in international capital market, government policy regarding Euro-issues and macro-level policies.The finance manager should keep himself abreast of financial market conditions, interest rates and equity returns, innovative financial instruments and services and possibilities of off-balance sheet financing.Now let us examine the impact of globalization on various decision making tools used by the management at the operational level.

IV
Globalisation and Decision Making Tools

Globalisation and C-V-P Analysis

Marginal costing is a tool in the hands of management accountants to segregate the variable costs from total costs.The margin between sales and variable cost is known as the contribution margin, because it represents the portion of the period's revenue which is left to make up the fixed costs and to earn profit.The relation between cost, volume and sales may be presented symbollically.

For instance, 'total cost' (C) may be described as a function of output (x), i.e., $C = f(x)$.

Thus marginal cost may be derived from above function as $M = dC/dx$, $C = M. x + b$

Where, C = Total cost,
M = Marginal cost per unit,
B = Fixed cost,
x = Output.

Globalization may have different impact on various components of cost structure and the cost function may be represented as above.

After globalization, it is most likely that fixed cost component 'b' will get more prominence in the cost structure.It is so because (i) with the technological advancement and introduction of foreign sophisticated equipment, the production process will be more capital intensive and automatic, (ii) awareness of people regarding environment and environmental protection costs will increase and (iii) heavy inflow of foreign technology and collaboration with multinational corporations will lead to a situation where the life of fixed assets will be shortened.It entails a higher rate or annual depreciation.All these factors will culminate in an increase in total fixed costs.On the other hand, it is most likely, output (x) will increase due to following reasons : (i) India has a vast rural market which will be fully explored (Kumar 1994), (ii) there are possibilities of getting foothold at foreign markets newly opened up for globalization, (iii) improvement of quality of product through technological

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development, will provide more access to export trade, and (iv) there are possibilities of exporting some selected products like cotton and allied fabrics, agricultural crops, food and allied products.

In consequence, it may be assumed that marginal cost per unit will remain same for the time being.Hence the cost function after globalization may be represented as :

$$C' = M.\ x' + b'$$

Where,
- M = Marginal cost per unit.
- x' = Output at post-globalization period.
- b' = Fixed cost after globalization.
- C' = Total cost after globalization.

If the cost function changes as above, let us examine the consequences of globalization on (i) break-even point and (ii) profitability.

Break-even point (BEP) is calculated by the formula —

$$\text{B.E. sales (in units)} = \frac{\text{Total fixed cost}}{\text{Contribution per unit}}$$

$$\text{or, B.E. sales (in value)} = \frac{\text{Total fixed cost}}{\text{P/V ratio}}$$

$$\text{Symbolically, BEP (in units)} = \frac{b}{R - M}$$

Where,
- b = Total fixed cost
- R = Revenue per unit.
- M = Marginal cost per unit.

$$\text{B. E. sales (in value)} = \frac{b}{\frac{(R - M)\,x}{R\,x}} \times 100$$

Now if b shifts to b′ and b′ > b, and other factors remain unchanged, the break-even point will shift rightward.In other words, break-even point in value or unit term will be more than that of pre-globalisation period.Again margin of safety calculated as the difference between actual sales value and break-even sales will decline, because sales remaining the same, BEP in value increases.In this situation the project will be vulnerable to negative profitability.

The effect on profitability, however, will depend on the capacity of the firms to improve their position in terms of increase in the sales volume (x), selling price (R) and decrease in the marginal cost per unit (M). Considering the market scenario, the increase in selling price may not be possible in the near future in domestic market due to cut-throat competition emanating from the factors like delicensing of industry, inflow of foreign investment, equal treatment of inland and foreign corporations in all respects (Dave, 1994), reduction in custom tariffs and possibility of import of cheaper products.

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Now, let us examine to what extent output should be increased so that it will compensate the unfavourable effect of a rise in b, .i.e., fixed cost. Symbolically, the situation may be represented as below:

$P = R.\ x - C$ ..... (1)

Where, P = Profit at pre-globalization period.
R = Revenue per unit or sale price,
x = Output/sales volume
C = Total cost,

Substituting the values from Equation (1) into the cost function derived above,

$$P = R.\ x - M.\ x - b$$
$$\text{or, } R.\ x - M.\ x - b = P$$
$$\text{or, } x\,(R - M) - b = P$$

After globalization the formula may be written as :

$P' = R.\ x' - C'$ ..... (2)

Where, P' = Profit at post-globalization period
x' = Output at post-globalization period
C' = Total cost after globalization

Thus, if profit is required to be maintained at the same level at pre-globalization and post-globalization period, we are to find out required change in sales volume when selling price per unit and marginal cost per unit remain unchanged.Equating (1) and (2) we get,

$$P = P'$$
$$\text{or, } (R - M)\,x - b = (R - M)\,x' - b' \quad \text{(substituting from above profit functions)}$$
$$\text{or, } b' - b = (R - M)\,x' - (R - M)\,x$$
$$\text{or, } b' - b = (R - M)\,(x' - x)$$
$$\text{or, } x' - x = \frac{b' - b}{(R - M)}$$
$$\text{or, } x' - x = \frac{b' - b}{\text{Contribution}}$$

Where, $(R - M)$ = Contribution,

Thus, change in volume of output and sales must equal to change in fixed cost divided by contribution per unit, In other words, enhanced contribution from change in volume should equal to increase in fixed cost.Here one point is to be noted.If the firm can export its product it may reap some other benefits which are not considered in the above cost and profit functions.

Now let us examine the probable impact of liberalization on the revenue position of a firm.Export to foreign countries may result in the following direct and indirect benefits (Kumari, 1993) :

(a) Value-based advance licences for importing raw material components etc., without payment of duty.
(b) Duty free licences to import raw material and components required for producing goods to be exported.
(c) Gain on full convertibility of foreign exchange earnings.

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(d) Various tax concessions available on export of goods and services under the Income Tax Act, 1961.

(e) Various incentives available to units under various schemes viz, export house, star trading house, export processing zone and export oriented units.

(f) No commercial taxes or excise duty payable on finished goods when exported outside India.

Such direct and indirect benefits may lead to enhanced total revenue and that will contribute to make up the enhanced fixed cost.It is also expected that there will be no direct increase in per unit sale price.

There is also a seamy side of marginal costing.The constancy assumption in regard to unit variable cost throughout the period is indispensable to the introduction of the concept of marginal cost . But this assumption may not hold true after globalization.Similarly assumption regarding constancy of unit sale price may not also hold good in this competitive market scenario.Thus, if these two assumptions do not hold good, the total variable cost curve and total sales curve will not take the shape of straight lines rising upward in times of increase in sales and production.

In such a situation, the task of determining the level of contribution, where the product of unit contribution (c) and units sold (x) equals to the aggregate of fixed cost (b) and profit (p), will not be so easy.

It is so because, contribution per unit will not remain constant over the whole range of production and sales.Instead, the concept of total contribution for a period may be introduced as below :

Sales value - Total variable cost = Total contribution.

Symbolically, S - TVC = TC.

Total contribution will change according to changes in per unit selling price and variable cost which may remain constant upto certain range of production or sales.They may shift for increase in production after a certain stage.Hence, there may be a series of unit costs and selling prices.Thus, we may introduce a series which will represent variable cost and sales value for different productions/sales range.So total contribution may be represented as summation of the series of contribution for different product range where unit variable cost and selling price remain constant.

$$\sum_{i=1}^{n} C_i = \sum_{i=1}^{n} S_i - \sum_{i=1}^{n} V_i$$

Where, C_i = Contribution in a short period i for product range i.

S_i = Sales in a short period i for product range i,

V_i = Variable cost in short period i for product range i,

and i = 1, 2, 3.....n.

These series will be helpful in locating the range of production-sales upto which total contribution is maximum.So, management can decide on the most profitable production capacity. .If such an idea of series is introduced,

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the usual concept of marginal costing would also be helpful when there is fluctuation in unit variable costs and selling prices.

Impact of Globalisation on Accounting Control Devices

One systematic approach to facilitate effective management performance is profit planning and/or budgetary control.It is a systematic and formalised approach for stating and communicating firm's expectations and accomplishing the planning, coordination and control responsibilities of management in such a way as to maximise the use of given resources (Pandey, 1979). It provides overall control in the broader areas on all the divisions of the organisation.Globalisation and advancement of information technology will have impact on the organisational structure of the firm.The hierarchical organisation structures will become much flatter (Choi, 1993).Such change in organisational structure will have its impact on planning and control technique.Budgeting, being an overall control device, would not be much effective; instead, there will be decentralized control through segmental/ divisional budgets.Moreover, conventional budgetary control may also be changed, since there will be constant changes in processes, technology, quality of the material, character of labour etc. i.e., key factors governing budgeting.

Standard costs are used for controlling performance through more detailed analysis of variance in terms of their causes and point of incidence.After globalization, fixing of standard costs would be more detailed.International standards regarding productivity, quality and price would be the bench-mark for determining the standard for each element of cost.Introduction to this control device may confront with some hurdles because there may arise frequent changes in the process of production, technological development and changes in prices of input.In such a situation standards should be revised frequently to compare them with actual results.So there should be continuous monitoring of standard costs to make it comparable with international standards.Thus, companies have to practise the technique for setting flexible standards.

Conclusion

What have been discussed here encompass only what changes we can foresee about the impact of globalization on existing accounting tools and techniques used in decision making.Recovery of dominancy of Japan and Germany in world economy, growth of newly industrialised Asian countries like Korea, Singapore, Thailand, shift of socialist countries towards market economy and advent of high speed information technology have their overall impact on restructuring of old industries.Emerging service sector is replacing the dominance of traditional production sector.All these have their effect on corporate sector.New organisation form will emerge with little hierarchy.In consequence, network of new combination of organisation will spring up.Rapid development in technology and continued advances in computer lead us to the threshold of information era.We are forced to realize that the notion of isolationism, or the days of confining to 'debits' and 'credits' only are things of the past.

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Industries are looking more and more to acounting firms as global business advisors, and less and less as statement compilers.The role of attestory functions of accountants are dwindling day by day.'Accounting system should have methods of relating past or cause - to future - or effect.Management need immediate information in real time (i.e., while they work) not event measures after the events.The greater the lag between efforts and results, the greater the need to monitor leading indicators like quality, responsiveness and productivity.Accountants are to devise new measures in the area of product quality, productivity, innovation and customer satisfaction.

In this world of perpetual changes we have to be adaptive.Our present day system of training and education of accounting should be displaced by life-long training.While technical job skill will continue to be important, the more pressing requirement will be for every people associated with accounting to be able to think and create. "In today's economic society the transaction is only one of many concepts implicit in the information (that) accountants must learn to develop and distribute.Surrounding events and external and internal environmental circumstanes also need to be observed by accountant to identify additional relevant information for both long term and operating decision making"(Bedford Committee, 1986, p. 191). Accounting world is not an exception to the Darwin's principle 'survival of the fittest'.Either we adapt to the changing situation or perish.

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Accounting Education and Financial Reporting Systems of the Third World : A Mismatch of Indigenous Environment and Alien Concepts

Arup Choudhuri *

Introduction

This article probes into the hypothesis that all the countries lumped together arbitrarily into a group known as the third world have a very inadequate and ineffective accounting system and financial reporting practice. As is well known, these countries are in various stages of economic development and a wide divergence exists in their social, cultural and political settings. Still it remains true that they are, in a way, very close to one another in respect of the systemic characteristics of their economy. At present, a number of international and national opportunities and challenges are forcing them to take recourse to gigantic amount of loans from international agencies like the IMF, World Bank, other Bretton Woods agencies and the like, as well as from the governments of the USA, the UK, France, Germany, Japan etc. The collapse of the socialist system in eastern Europe and the economic experiments of People's Republic of China, Vietnam etc. are inducing them, so to say, to jump into the bandwagon of the ever-expanding group of states, lately realizing that the capitalist path of development is now the only road for economic development left to them. The recent craze for privatization and the welcome accorded to the MNCs are but pointers to the urgency felt by the so-called third world countries for economic development. Capitalist development cannot but demand a sound accounting system, truthful and informative financial reporting, and an adequate scientific accounting education. The paucity of funds to be devoted to doing all this prevents the third world states from undertaking a thorough overhaul of their world of accounting. Under such circumstances, what they do is simply to bring some cosmetic changes in their accounting systems and patterns of accounting education. They borrow not only money from the first wold, but also a number of concepts for grafting into their accounting and reporting systems. The obvious outcome is a mismatch between the alien concepts and the prevalent social realities of the societies concerned.

As accounting plays an important role in socio-economic decision-making, the accountants of the third world are now facing a challenge while negotiating the pressures of these changes.

This article attempts to provide an outline of the socio-economic and political bottlenecks that stand in the way of third world economic development, the social reality vis-a-vis the accounting profession from a third world perspective, and the incongruity between the economic environment and the alien concepts relating to financial reporting and accounting education in those countries.

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Social Reality and the Accountants : Third World Perspectives

In the ancient world, when barter was the only form of economic transaction, accounting was virtually non-existent.The history of accounting derives its origin from the early Egyptian[1], Sumerian-Mesopotamian[2], and Greek[3] civilizations (Krovkin, 1988, p.44; Piotrovsky *et. al*, 1983, p. 55, p.218), when some form of money emerged as a medium of exchange.For centuries, accountants represented the kings and the rulers.They used to work as both tax and revenue collectors and book-keepers.They used to torture poor people for realising a large amount of tax revenue and thus please their masters.No wonder, commoners looked down upon accountants.Practically, every society has witnessed protests against these accountants by their own brands of 'Robin Hood'. As a part of their professional requirements, accountants have to handle other people's money.Therefore, many a time they are charged by society of theft, embezzlement and misappropriation of money.

Accountants are armed with many rules of valuation.Even today, when they have to follow certain international standards prescribed by their respective professional institutes, they can, if they so intend, window-dress the accounts of an entity.There is an element of truth in the common belief that the accountants can do magic with figures.In other words, there is scope for accountants to toy with figures.Accounting may indeed be creative in a sense (Naser, 1993, p.33). Whether this "creativeness" is good or bad is not yet known for certain.For example, Graham (1988) makes an ironical query : "With creative accounting who needs cheating? "Jameson (1988, p.39) is quite explicit in his declaration : "Let there be no doubt about it, creative accounting is a bad thing because it disrupts company results and financial position (p.20)." Colin Mayer (1988) states, ".....there are few subjects, that have succeeded in being simultaneously denounced by both academics and practitioners.Accounting has attained that pinnacle (p.3)." Such views and opinions are not held by all academicians; many of them believe that accounting may indeed be creative to the advantage of its users in particular, and the society in general.Despite the fact that accountants speak of the science of accounting, the art of accounting or even, the philosophy of accounting, accounting remains, even today, nothing more than a pseudoscience.

A.C. Littleton (1965), while introducing a collection of essays on accounting, mentioned that in every society accountants are portrayed as prosaic figures.They are never made heroes of novels, plays or poems.The accountant is not even honoured by being made a noteworthy villain (p.5).

There has recently been a sea-change in the attitudinal frame of the advanced societies of the West towards the accounting profession.This has been made possible by a series of developments taking place simultaneously — the most important of them being the rigorous application of accounting standards at the time of preparing, auditing and authenticating accounts, the use of different accounting softwares, the practice of having accounting work done by transnational companies from two parts of the globe through the use of satellites, and the preparation of final accounts in conformity with hundreds

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of rules and regulations framed by appropriate bodies.The accountants of the leading industrial societies have been able, to some extent, to earn societal recognition for doing a useful job. Such recognition, however, is not forthcoming to their third world counterparts.The cause is to be found primarily in the poor quality and institutional arrangements of technical education, including accounting.

The accountants of the third world, like their counterparts in the developed world, have to deal with a social reality that is already there.They do not create the reality.But the reality itself gets continuously designed because of their professional work, and their practices, in turn, get tuned to the reality.The social reality of a given society in relation to accounts, thus, happens to be a dialectical one (Lawrence, 1992, p.9).The accounting profession and the institutions that have anything to do with accounting are but a part of social reality — both as means and end products.The dialectical relationship achieves greater depth and width as the system of accounting and the social set-up attain more maturity.

When the accountants of the third world endeavour to provide a 'true and fair view' of accounts, what they really aim at is creating a sense of order (Chambers, 1975, p.9).The traditionalists opine that the accountants are engaged in providing an objective and true representation of some underlying reality. Academics like Gambling (1985), Chua (1986), Morgan (1988) and Hines (1988) contest this view with the argument that the reality the accountants communicate is only a product of the interpretative techniques employed by them.They profess to follow a well-established set of rules, but they hardly succeed.Take, for instance, stock valuation.No set of rules without provision for wide contextual variation can do even a semblance of justice to such valuation.Despite rigorous adherence to standard procedures, it is possible that accountants may come up with many alternative pictures of objective reality within the confines of the said 'standards'.In the third world the so-called standards are mostly borrowed from the countries of the West. When the accountants of these countries seek to apply these standards, they find that some of them are hopelessly inadequate for portraying objective reality. Even most of the remaining ones which do not suffer from inadequacy do depend on the opinions of the accountants for their application.Opinions and objectivity are contradictory terms.Gerboth (1987, p.8) goes to the extent of saying that objectivity is not grounded in standard principles, but in the conduct of the accountants.Stewart Lawrence (1992, p.13) opines that it is not certain "whether there is a value that accountants attempt to somehow measure or report, or whether the value is a creation of accounting procedures which serve to objectify a quality which like beauty is in the eye of the beholder".Objective social reality remains a will-o'-the-wisp to the accounting professionals of the third world countries in view of the fact that standard procedures are lifted from statute books of western capitalist countries.They have, in many instances, only questionable relevance to the social reality of the third world country in question.Secondly, the conduct of accountants in third world countries can

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hardly be expected to be a replica of that of their western counterparts.Lastly, the epistemological issue remains vital in the third world also.Are the accountants simply presenters of social reality ? Or is the reality that they depict only the result of their interpretative schemes, rules and regulations? Is the reality perceived by the accountants a distorted reality ?

Factors Influencing Accounting Education and Financial Reporting in the Third World

The third world countries form a heterogeneous group.Each nation belonging to the third world has distinct economic, political industrial, ethnic and environmental characteristics. Naturally the nature of problems they face are of a diverse nature.But one can find a unity in diversity in so far as economic problems are concerned. All these countries are mostly poor and agricultural. Industrial development, which is a significant determinant of accounting education and practice of a country (Belakaoui, 1985, pp. 44-47 and Carnegie, 1993, pp. 204-205) is still in its infancy. As a result, in the third world, both accounting education and financial reporting have remained almost stationary, if not moribund, primarily because industrial growth and tempo of economic activity have hardly acquired requisite momentum.One wonders what societal purpose is served by accounting education and financial reporting in the third world countries!

The following classificatory scheme seeks to bring to the fore the factors that go to shape accounting education and financial reporting in third world countries :

Politico-Economic Factors

The industrial policy of a country, be it in the first, second or third world, goes a long way in providing the fundamental boundary of the politico-economic environment.Industrial policy can be approached from a variety of perspectives, since governments frequently attempt to control or influence different areas of economic activity relating to the industrial sector.Consequently, industrial policy can cover a broad range of questions, for example, international trade in industrial goods, the allocation of finance between enterprises, the choice and development of technology, the competitive behaviour of producers, and the relative roles of large and small-scale firms.

However, if one wishes to generalize about the policies pursued across a large group of countries it is necessary to narrow the discussion to specific aspects of policy.This can allow a classification of countries in terms of their policies in these areas.In the literature on industrialization in developing countries four major aspects of policy have received particular attention :(1) the treatment of foreign trade, particularly the use of various forms of taxes and trade restrictions to protect domestic industry; (2) the use of direct controls, such as investment licences and price controls, to influence the allocation of resources, both within industry and between industry and other sectors; (3) the degree to which foreign investment by transnational firms is relied

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upon to provide foreign exchange and technology for new industrial projects; (4) the relative roles attributed to the public and private sectors in industrial programmes. (Weiss, 1988, pp. 26-27) Moreover, if we analyse the industrial policies of the third world nations, we find some dichotomies, the most notable of which are the following : 'inward-looking' versus 'outward-looking' trade policies, 'dependent' versus 'non-dependent' policies, particularly in relation to foreign investors, 'capitalist' versus 'socialist' policies on industrial ownership.

i) Inward-looking vs. Outward-looking Economies : In general, inward-looking economies are those that have pursued policies of import-substitution industrialisation, so that domestic industry is established to supply markets previously served by imports. Trade policy measures often employed in such economies include relatively high import tariffs, quota restrictions on imports, and controls on access to foreign exchange.In such economies, the export sector is generally penalised relative to the sector producing for the home market. In contrast, outward-looking economies are those where the bias against exports is removed, and in the aggregate net incentives to domestic sales and exports are equal.Industrial policies of this type do not necessarily imply free trade in industrial goods since domestic prices and world prices can still diverge.However, economies generally classed as outward-looking tend to have lower rates of import tariffs, and to rely much less heavily on import and foreign exchange controls, than the group of inward-looking economies.

A classification is given by Balassa (1984) covering 24 countries on the basis of trade policies.Table 1 gives this grouping of countries.A major difficulty with this approach is that policies in this area can be transitory so that classifications valid for one period are not relevant for another.

Table 1 : Balassa's division of countries into inward-and outward-looking

Outward-looking	Inward-looking
South Korea	Brazil
Singapore	Israel
Taiwan	Portugal
Chile	Yogoslavia
Uruguay	Argentina
Kenya	Mexico
Mauritius	Jamaica
Thailand	Peru
Tunisia	Tanzania
	Egypt
	India
	Morocco
	Philippines
	Zambia

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ii) Dependent vs. Non-dependent Economies : The major obstacle to the economic progress of developing countries is their dependent relationship with the rich developed countries.The concept of 'dependence' is itself both ambiguous and controversial, and can have both economic and non-economic dimensions.The economic characteristics of dependence in developing countries most commonly are probably : a heavy penetration of foreign capital in the major sectors of the economy; the use of capital-intensive imported technologies; specialisation in exports of primary commodities or labour-intensive manufactures; consumption patterns of domestic elites copied from the rich countries; 'unequal exchange' in trade, defined in various ways; growing inequalities in income distribution.

The first of these characteristics relating to the role of foreign investment by transnational firms is generally viewed as central to the creation and continuation of dependence, and therefore a major determination of the other characteristics associated with dependence.Transnationals are the representatives of international capitalism and transfer of capital, technology, management and marketing techniques between countries.A dependent industrial policy is taken to be one where the government concerned invites or allows a heavy foreign involvement in industrialisation, through direct investment by transnationals.

Although this approach is relatively common, it does not allow a comprehensive classification of countries, partly because of lack of accurate data on the magnitude of foreign involvement in many developing countries, and partly also because of the difficulty of determining what size of foreign presence is sufficient to create a dependent industrial policy. Critics of this approach have pointed out that by the criteria of the share of foreign firms in industrial activity many of the developed economies would appear to qualify for the description 'dependent', which appears paradoxical given the role dependence plays in explaining economic backwardness.

Foreign investments in developing countries tend to be greatest in the chemicals, machinery, electrical machinery and electrical goods, transport equipment and food processing branches.Not surprisingly, foreign firms often dominate production in recipient countries in the more sophisticated capital-intensive manufacturing branches[6].The pharmaceutical branch of chemicals is probably the clearest example of this, since in many developing countries foreign firms provide over 80 percent of output.

iii) Capitalist vs. Socialist Economies : Most of the third world countries had been erstwhile colonies of advanced capitalist nations of Europe.They wrested emancipation in the post-Second World War period.They felt the dire need for securing accelerated economic development to feed their teeming millions.The exploitation of their economies by capitalist nations made them suspicious of the merits of the capitalist system.Meanwhile, the Twentieth Party Congress of the erstwhile Soviet Union declared its conviction that it was possible for third world states to undertake a journey towards socialism by jumping over some of the intermediate stages lying between feudalism, capi-

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talism and socialism.The mixed economy, in theory and practice, turned out to be a half-way house between capitalism and the preliminary stage of socialism.The third world countries which considered it worthwhile to experiment with mixed economy found it tough going when the eastern European socialist system collapsed.

One might expect that policies in socialist economies would differ significantly from those in capitalist economies with a similar income level and resource endowment.However, broad comparisons are difficult, partly because there is no agreed definition of what constitutes a socialist economy and no universally acceptable list of socialist developing countries.

In this regard, the World Bank (1983) brings together such data for a number of developing countries, and a relatively significant role for the public sector is identified in several of them such as Egypt, Syria and Tunisia, which, many would feel, are far from socialist judged by the practice of their political regimes[7]. Socialism in the third world nations in most of the cases failed to produce any economic miracle expected of it.It will be no exaggeration to say that socialism in these countries 'has turned Marx on his head' by relatively backward and peripheral contexts.In consequence rather than being an historical successor to capitalism, socialism had become a historical bypass abandoned by its users.

Avramovic (1988, pp. 1-2) sums up the current situation as consisting of four layers of conditionality : (a) Demand conditionality pioneered by the IMF through their monetary approach to the balance of payments.This focuses on cutting spending, primarily that of the government, currency devaluation, raising interest rate upgrading and trade liberalization.There are now also elements of supply conditionality, mainly in eliminating price controls; (b)Supply conditionality, pioneered by the World Bank, originally focused on project (or micro) formulation and implementation, and dealing with pricing of products and services to be sold by the project, and its management.This was then extended to cover sectors, and now, with 'structural adjustment lending' to the entire economy.The centre of attention is the investment programme, system of incentives, pricing, financial liberalization, and trade liberalization; (c) 'Growth' conditionality, in application during the last year or so, focused on giving a free hand and incentives to the private sector of the economy including 'privatization' of government-owned enterprises as much as possible, rationalization of the rest, promotion of foreign direct investment, and again, trade liberalization; (d) Cumulative total of (a), (b) and (c) called 'cross-conditionality', where lending decisions of each agency depend on the borrower having met the loan conditions of some other agency.This is now in increasing use, and it involves private as well as official lenders. The breakdown in arrangements between a borrowing country and any one of these agencies — in particular the IMF and The World Bank-can have a 'domino effect' in relation to all other agencies.

Many of the above measures are highly controversial and there is a large literature on the efficacy and the validity of the specific parts of such

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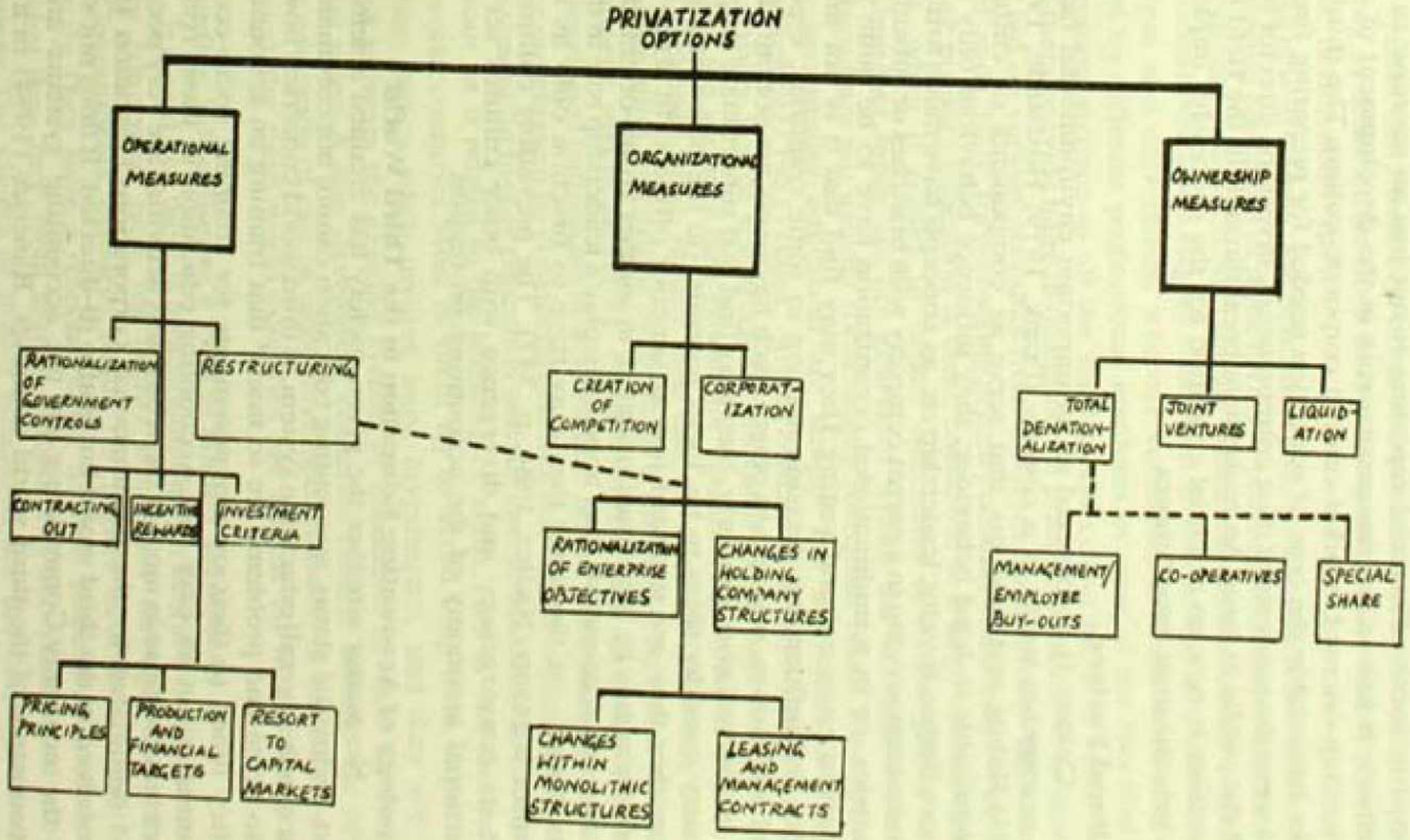
programmes, e.g. currency devaluations, rise in real interest rates, monetary and fiscal targets[8]. However, in the context of this paper, this conditionality also reveals a particular approach to industrial policy.Central to this perspective are two elements : 1) an increase in the role of free markets and private enterprise as far as possible and a diminution in that of the state; hence measures such as privatization, deregulation, financial liberalization, changes in taxation and other incentive systems; 2) a closer integration with the world economy; hence the emphasis on export promotion, import liberalization, bringing domestic prices in line with world market prices through changes in the exchange rate, and promotion of foreign investment. In line with these conditionalities most of the third world nations have already undertaken the privatization programme of their public sector units (PSUs) with a vengeance.

Basically, privatization represents, marketization of enterprise operations.It can be sought through three options : ownership changes, organizational changes (privatization of management) and operational changes (privatization of enterprise disciplines). Figure-1 shows in detail the privatization options available to the third world nations. Each option may be said to be characterized by a different set of constraints. Therefore, the pattern of privatization efforts pursued by different nations display differences. In India the poor performance of the public enterprises is primarily the reason that compelled the Indian Government to turn to a programme of privatization.The privatization model as it stands today is geared to four major directions :(1) *Capital divestiture* : Through sale of equity of selected public enterprises.The 1991 July budget provided for Rs. 25 billion for the 1991- 92 fiscal year.This was followed in the February 1992 budget for the next fiscal year at Rs. 35 billion. (2) *Closure of sick and unviable units* : Initially 44 and later 56 such enterprises were identified in the CPU sector. (3) *Adhoc privatization moves*: Some activities of the public sector are to be disaggregated from the essential or core activity and non-core activities could be privatized. (4) *Incremental privatization* : Several important sectors which were reserved for the public sector have been thrown open to private enterprises.These include powerful segments such as energy, telecommunications, and steel.

In most cases the actual outcomes of economic reforms have been qualitatively disappointing in the third world.To date, privatization efforts in the third world have provided only very small dividends (Ramanadham 1993, p.1). One of the main reasons for this failure is that the accounting profession in the third world is still not mature enough to cope with the sudden radical changes taking place in its political economy.The third world planners could not but accept with bended knees the conditionalities dictated by the World Bank and the IMF in respect of industrial development.They had to listen to and abide by suggestions of privatization for rejuvinating their economies.Such a predicament was inevitable in view of the wide gaps between tax revenues and governmental expenditures and increasing debt burden.Not to speak of the principal of these loans, the burden of payments of interest was working as a noose around the neck of the third world economy.

FIG.: 1 PRIVATIZATION OPTIONS AVAILABLE TO THIRD WORLD NATIONS



(Source: Ramanadham; 1993, p.3 [Adapted])

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Through financial reporting, the accountants contribute substantially to the development of corporate culture in view of the fact that it serves as an instrument in establishing a rapport between the members of various interest groups in society.Financial reporting is not just an exercise in interplays of numbers; it has an instrumentalist role in the development of an individual ownership-oriented, market-centred corporate culture.The third world today lacks lamentably the type of education needed for preparing financial reports that serve the interests of their entrepreneurs, investors, director boards, clients and the public at large.An immediate breakthrough in the field of accounting education is now an essential condition for the successful implementation of the privatization programmes.

Cultural Factors

Culture is recognized as an important environmental factor affecting the accounting world of a country (Frank, 1979; Hosfstede, 1987; Carregie, 1993).Habits and customs that serve as components of culture are never recognizable in legal behaviour; they influence behaviour only as extra-legal factors.Bribes, loyalty, leadership etc. as concepts have much to do with culture. Accountants serving in a parent company with branches or subsidiaries in other countries, or in a multinational organization have to be quite at home with the given cross-cultural setting.They may find that it is not immoral to use bribes for influencing decision-making in some countries, especially in the third world ones, whereas in others, such payments are not only immoral, they are ineffectual also.Similarly, they may find that subordinate employees in one country consider them to be 'locus parentis' (in the place of a parent), while in another they are regarded just as superior officers. In some countries the work norm may be individual-oriented, in another group-oriented.In the former country the accountants may hope to display a leadership role in the preparation of accounts, in the latter they may have to function only as members of a team or a group (Nadler, 1984, p. 347). The prevailing culture of a country and its convergence and divergence with other cultures set limits to the functional autonomy of the accounting profession.

Typology of Accounting Education in the Third World

No matter whether the given society has attained a semi-industrial or post- industrial status, accounting education cannot but command a prominent place in the overall education system.In third world countries, however, poverty is so acute and problems are so many[9] that framing an accounting education policy tuned to their own requirements for attaining socio-economic development is not an easy task.Accounting education in these countries takes a backseat, because in most of them business activities are very poorly developed, and dominated by the multinational corporations.Education is not only ill-conceived in the third world but is also ill-directed. It does not serve the needs of the economy.Commenting on the accounting systems and the role of accountants of the third world countries, Banerjee (1994) in a recent survey rightly opines, 'the accountant's role in such economies should be increasingly

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directed toward the management of national resources by engaging in productivity measurement, social cost-benefit analysis, pricing decisions, tax-structure formulation and administration, internal audit, national income accounting, government accounting and budgeting, and designing decision support system.Unfortunately, however, in most of the developing countries, accounting systems suffer from technical, operational, behavioural and socio-economic deficiencies' (p2).

As is well known, the education policy of a nation comprises strategies for improving education at three levels —primary education, higher education and vocational education.Accounting education comes under higher as well as vocational education.Higher education in theoretical accounts is imparted at colleges and universities, whereas vocational education of accounting is provided by different professional institutes.In view of the fact that illiteracy is a common menace to all the third world countries, it is often found that most of them provide huge investments on primary education.As most of them receive aid on various accounts from different international agencies like the UNICEF and UNDP, for promoting primary education and literacy programmes, financing primary education in these countries, to a large extent, is taken care of. But, when it comes to higher education it is altogether a different story.Abundant funds are not generated within the national territory; funds from abroad are not usually forthcoming.Adequate funds for imparting high-quality accounting education are simply not available in a developing country.Schultz (1981) states, 'higher education in any society is a specialized costly activity.Scarce resources are allocated to support colleges and universities, and the services they render are valuable.The costs of higher education can be reckoned more readily than can its value (p41)'.Every investment in higher education, regardless of the form it takes, is a forward, long-run, future commitment, and is, therefore, beset with risk and uncertainty (Blaug, 1975, p75).Developed nations are in a position to afford risks and uncertainty because they are not plagued by considerations like scarcity of capital, the long gestation of investment on higher education and the enormous delay in moulding public behaviour as it relates to the learning of skills.This is not the case with the third world countries.Most of them try to avoid long term experiments with education policy whch involve huge investments, and they are willy-nilly induced to retain the existing system of education devised by their erstwhile colonial rulers.A few developing countries blindly imitate the blue-print of higher education of one or more developed nations. In the field of accounting education the third world countries are almost all in the same boat.

Accounting Education as a Part of Higher Education

It is said that there is an accountability triangle working in societies.The society concerned pays for higher education through tax (Frazer, 1992, p16).Governments disburse funds for higher education either directly or indirectly.They have a responsibility to their respective societies to ensure that what they 'buy' from higher education is acceptable and provides value for money.The clients of higher education are the employers who, in turn,

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FIG. 2 ACCOUNTABILITY TRIANGLES WORKING IN DEVELOPED AND THIRD WORLD NATIONS

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serve society by providing employment and generating national wealth.For almost all developed societies the accountability triangle can be drawn in straight smooth lines;for the third world countries the sides of the said triangle have to be drawn with crooked or broken lines (Fig 2).

The distortion in the accountability triangle is due to the fact that government policy in third world countries concerning accounting education does not match the needs of the society in question.The employers are not happy about the quality of the recipients of higher education.The quality assurance is impossible unless the governments of the third world nations frame higher education policy in such a way that they meet their specific societal needs (Jones, 1975, p10).

The accounting education systems of the third world countries are modelled primarily on the systems inherited from the European colonial states.Such systems are distinguishable from the non-colonial ones.Just as the education policy (including higher education) pursued in the colonized state reflected the power and educational needs of the colonizers, the accounting education policy was tailor-made to serve the interests of the colonial government and the captains of trade and industry owned by colonial masters.What seems funny is that till today many third world nations consider it necessary to provide accounting education through the language of their erstwhile rulers.For most of the common people of these countries learning accounting through a foreign language is well-nigh impossible. It so happens that in all these countries anyone who recieves accounting education as a part of higher education becomes automatically a member of the elite.Such a state of affairs is unthinkable in a country which has not experienced colonial subjugation.The system of accounting education provided in the colonial state was to create a bunch of clerks efficient in preparing final accounts in great details;the students were never encouraged to search for reasons involved in each step.Theory-building was never made the concern of students receiving accounting education at colleges or other educational institutes.

In many third world countries there is in evidence a strange mix-up of two opposite methods in the national accounting system.This happened because of the subterfuge the colonial rulers resorted to in administering their colonies[10].In India, the British made an opportunistic alliance with *Nawabs*, *Nizams* and *Maharajas* and allowed them to keep accounts in their own traditional ways, subject to the suzerainty of the British.In Nigeria, the British ruled through Hosua chiefs;in Indo-China (today's Vietnam) the French compromised with the local kings and the traditionally trained bureaucrats.The instances can be multiplied to show that both administration and accounting in colonial countries exhibited an amalgam of contradictory systemic characteristics which have not been abandoned even today. Even after independence, the same system of accounting education may be said to be in use in most of the third world countries.In India, Pakistan, Bangladesh, Mexico Mauritius, Indonesia and in many other erstwhile colonial countries professional institutes emerged for providing vocational education, but still now the

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higher education pattern remains the same as before.As a result, two parallel systems of learning practical aspects of accounting may be said to be in operation: the collegial and the professional.The latter system attracts the better quality students with enough financial resources at their disposal whereas the former absorbs the relatively poor, less meritorious and less ambitious students. In most of the third world countries which were under the British colonial rule, accounting is not studied as a separate discipline.It is taught under the discipline of Commerce which includes many other subjets such as law, economics, management and economic geography.

It is ridiculous to expect from the accountants of the third world any expert knowledge about the relationship between ethics and accounting or the evolving science of accounting for the conservation of the environment. Some third world countries have preferred to borrow the American system of accounting education abandoning their existing systems, for example, Trinidad and Tobago, Bermuda, Haiti, Fiji, Solomon Islands, Botswana, etc.But such borrowings have hardly paid rich dividends (Sevic, 1994, p.20).

Accounting Education as a Part of Vocational Education

Vocational education or professional education of accounting in the third world also lacks a proper direction. Engleman (1962) points out the prerequisites of a successful accounting profession in developing countries in the following way : A full comprehension of accounting goals over and above the mere recording of incoming and outgoing cash; understanding the role of accounting for management purposes; recognition of the principles of business economics; and acknowledgement of the public responsibilities involved in the profession.

Enthoven (1985) feels that for upgrading accounting training in a third world country the following have to be provided : a conceptual socio-economic foundation of accounting education and training; a further specialization in the various branches of accounting; a closer link among the institutional, professional and educational programmes and continuous education; and a greater focus on forecasting techniques, of both an internal and external nature.

It stands to reason that professional accounting education policy should be such as to make the recipient of such education competent enough to prepare company accounts and to report the same in such a manner that certain standardized practices that guarantee some sort of uniformity are followed. In most of the third world countries the accountants had had their first lessons on accounting standards while at professional institutes; but when they are drawn to the professional sphere they hardly feel inclined to apply those standards and regulations learnt at those institutes.Their self-interests induce them not to apply the rigours of law while preparing and presenting the accounts (Zaidi, 1993, p.98).Yakoob comments that in Indonesia professional accountants are the main culprits of distorting company accounts (Yakoob, 1992,p.198).Under the Ghanian law each company has to appoint a chartered accountant. But the company accounts in Ghana rarely show any truth (Zolonbwe, 1990, p.281).Those who are really interested in knowing the truth

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go to detective agencies which are engaged in the task of keeping the records of companies.This is also the case with Tanzania, Uganda, Mali and Rwanda (Zolonbwe, 1990, p.307). Corruption works at the very root of the professional accounting education system in some third world countries, such as, Kenya, Mozambique and Ethiopia. A C.A. degree is reported to be purchasable on the payment of a fat sum of money (Yakoob, 1992, p.197). In Nepal, Maldives, Iran, Yemen, Bhutan etc. foreign degrees, particularly British, exalt the position of men engaged in the accounting profession.

Typology of Financial Reporting in the Third World

The pattern of financial reporting varies from country to country. In the developed nations, recently attempts are being made to minimize these variations through harmonization of accounting practices, principles and procedures.But in the third world, in most cases, uniformity of financial reporting is almoset non-existent. Some western academicians have endeavoured to classify the financial reporting patterns prevailing in different countries. But the third world nations have rarely featured in those classifications.

Of the 'subjective' classifications based on 'zones of influence', Seidler's (1967) classification suggests three groups : British, American and Continental European (p. 776).The American Accounting Association (AAA) also produces a subjective classification.According to AAA, financial reporting pattern can be classified as :

1. British
2. Franco-Spanish-Portuguese
3. Germanic-Dutch
4. US

and 5. Communist (AAA, 1977, p.105 and pp.129-130)

Frank and Nair (1980) provide another classificatory schema (Table-6) based on measurement practices :

Table 6: Classification Based on 1973 Measurement Practices

British Commonwealth Model	Latin American Model	Continental European Model	United States Model
Australia	Argentina	Belgium	Canada
Bahamas	Bolivia	France	Japan
Eire	Brazil	Germany	Mexico
Fiji	Chile	Italy	Panama
Jamaica	Colombia	Spain	Philippines
Kenya	Ethiopia	Sweden	United States
Netherlands	India	Switzerland	
New Zealand	Paraguay	Venezuela	
Pakistan	Peru		
Rhodesia	Uruguay		
Singapore			
South Africa			
Trinidad & Tobago			
United Kingdom			

Source : Frank and Nair (1980), p. 429.

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However inefficient it may be, every country in the third world possesses a distinctive style of corporate reporting.In most of the cases this pattern shows a mixture of one or two foreign systems (such as British, French, German, Dutch, Spanish, Portuguese, Canadian, or American).

The following is a statement of the divergence between some of the countries belonging to different continents.The countries chosen are : India and Pakistan from Asia, Nigeria, Mauritius and Egypt from Africa, Mexico and Brazil from Latin America and Bermuda from Central America.

India

In India the form and content of a company's financial statements are prescribed by the Companies Act, 1956[12]. Certain accounting standards (including disclosure of accounting policies, revenue recognition, etc.) issued by the ICAI are mandatory while others are only recommendations. The directors are responsible for the preparation of a company's financial statements, which are audited and presented to the shareholders to give a true and fair view of the company's state of financial affairs.

By law, the financial statements should contain :

* Balance sheet,
* Profit and loss account,
* Notes to the financial statements,
* Director's report, and
* Auditor's report.

Comparative figures for the previous year are also required.

However, companies whose shares are listed on recognised stock exchanges are permitted to issue abridged financial statements in the prescribed form in lieu of the full statements. Accounting policies adopted by the company are disclosed as required by the ICAI.Many companies also publish a Chairman's Statement. The profit and loss account, in addition to certain prescribed disclosure requirements, should also contain by way of a note, detailed information of amounts paid to auditors, whether as fees, expenses or otherwise, for services rendered.In many cases it also states in respect of each class of goods manufactured, the licensed and installed capacity and actual production.Companies are also required to disclose the value of imports in respect of raw materials, components and spare parts, and capital goods.

Any expenditure in foreign currency on account of royalty payments, know-how, consultation fees, interest and other matters must also be disclosed. It is also necessary to disclose the consumption of all imported and indigenous raw materials, spare parts and components. All remittances in foreign currencies, on account of dividends, to non-resident shareholders, the number of shares held by them and the year to which the dividends pertain have also to be disclosed.Similarly, earnings in foreign currency must be separately disclosed under the headings of exports, royalty, know-how, interest and dividends and other incomes indicating the nature thereof.

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Pakistan

Pakistan's corporate legislation regarding financial reporting is considered by many as the best in South Asia (Choudhuri, 1994, p. 76). Pakistan's accounting legislation was originally embodied in the Companies Act, 1913, a legacy of the British Empire. In 1984, to cater to the changing environment of industry, commerce and communication, major legislations relating to Company Law were consolidated.Accounting legislation is now contained in the Companies Ordinance, 1984, Banking Companies Ordinance, 1962, and Insurance Act, 1938, as subsequently amended. With the advent of the Institute of Chartered Accountants of Pakistan (ICAP) in 1961, the accounting profession has developed generally accepted accounting principles which attempt to ensure that accounts show a true and fair view of a company's financial state.The accounting standards have legislative backing.

The pronouncements and guidelines issued by ICAP are influenced by International Accounting Standards (IAS).Generally IAS are adopted unchanged. Wherever necessary, modifications or supplementary guidelines are issued by ICAP to meet local requirements.The Ministry of Finance, through the Corporate Law Authority (the regulatory body for the affairs of companies) and the State Bank of Pakistan, to a lesser extent but particularly in respect of banking companies and non-banking financial institutions, are also involved in the setting of accounting disclosure requirements. Professional requirements are normally adhered to when preparing financial statements for organisations other than companies, such as co-operative societies.

Financial statements are prepared in accordance with the accounting standards, notwithstanding the specific legal provisions in tax laws. The form and content of a company's financial statements are prescribed by law embodied in the Companies Ordinance, 1984 and other statutes, such as the Banking Companies Ordinance, 1962, and the Insurance Act, 1938 (as amended), supplemented by pronouncements from the CLA, and in respect of banking and non-banking financial institutions, by the State Bank of Pakistan. The responsibility for the preparation and presentation of financial statements for shareholders, showing a true and fair view of the company's financial state of affairs, is that of the directors of the Company.The financial statements must contain :

* Directors' Report,
* Balance Sheet,
* Profit and Loss Account or Income and Expenditure Account,
* Notes to the Financial Statements, including the accounting policies adopted, and
* Auditor's Report

If all of the above are not included, the reasons for this must be disclosed.

In addition to the above, for companies listed on stock exchanges, the financial statements are required to conform to International Accounting Standards and other standards as notified by the CLA, to include a Statement of Sources and Applocation of Funds; and where applicable, to provide notes

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about the capacity of the industrial unit, its actual production and the reasons for any shortfall and credit facilities available but not used.

The financial statements of a holding company must include financial statements for each of its subsidiaries together with a statement of the holding company's interest in the subsidiary companies. Where the financial year of the holding company and subsidiaries do not coincide, additional details are required to be included in the financial statements regarding any change in the holding company's interest and material changes in a subsidiary's fixed assets, investments, monies lent and long term borrowings by it, between the end of the financial year of the subsidiary and that of the holding company. Under the Companies Ordinance, 1984, the directors' report includes a commentary on the state of the company's affairs, the dividend recommended and amounts proposed to be transferred to reserves.For a public company or private company which is a subsidiary of a public company, the directors are also required to report on : material charges and commitments affecting the financial position of the company between the end of the company's financial year and the date of the report; any changes during the financial year concerning the nature of the company's business or that of its subsidiaries; and reservations and qualifications contained in the auditors' report and to include, information about the pattern of shareholdings; and the name and, if estabhlished outside Pakistan, the country of incorporation of its holding company.Comparative figures are also required to be shown in the financial statements for all companies.

Companies listed on a stock exchange are required to prepare their financial statements in accordance with the Fourth Schedule to the Companies Ordinance, 1984, and other companies, in accordance with the Fifth Schedule; insurance, banking and other companies or organisations regulated by separate statutes are required to prepare their financial statements in accordance with the respective statutes. Insurance companies are also required to include in the financial statements a classified summary of their assets, giving both their book value and their market value. There is only one permitted format of financial statements both for persentation to shareholders and for public filing.

Brazil

The United States has a significant influence on Brazilian companies, mainly because of the large volume of work of US companies.This extends to accounting literature in Brazil, with US audit firms increasingly influencing Brazilian accounting and auditing standards.In general terms, accounting and reporting practices in Brazil also follow international standards. Financial statements of all Brazilian companies are adjusted for inflation through indexation.This has been the practice since the enactment of Law 6404, in 1976, which simplified "monetary correction" procedures.However, with the aggravation of inflation, publicly held companies are now required to produce indexed, constant currency financial statements using an official index, the IGPM (General Consumer Price Index) as a basis.

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The current format of financial statements, including the explanatory notes, is regulated in detail by law, as are the methods of valuing assets and liabilities.Open capital and audited companies follow more comprehensive rules set out by Instituto Brasileiro de Contradores (IBRACON - the Brazilian Institute of Accountants) and Comissao de Valores Mobiliarios (CVM - the Brazilian Securities and Exchange Commission).The audited financial statements presented to shareholders are intended to give a true and a fair view of the company's financial state of affairs. Tax laws affect the preparation of financial statements, particularly where provisions are concerned.For example, depreciation is charged at the rates set by the government and excess amounts are not tax deductible.Since, in practice, these are similar to realistic, conservative depreciation rates in terms of trade, there is no conflict with the truth and fairness of the financial statements. The accounting profession is well-established and the services provided by independent accountants are similar to those provided by a US certified public accountant.

All the practices here refer to a corporation or Sociedade Anonima (SA), though most of them are followed by the other types of companies permitted by Brazilian law, such as the Sociedade por Quotas de Responsabilidade Limitada (LTDA) which is part-company and part-partnership.In both cases, the directors or partners and the certified accountant (see below) are jointly responsible for the preparation of a company' financial statements. The type, form and content of a corporation's financial statements are prescribed by the Corporation Act (Law no 6404/76). They must also comply with the standards adopted by the Conselho Federal de Contabilidade (Federal Council of Accounting) and for publicly-held companies, of the Securities and Exchange Commission (CVM).

The financial statements of a business enterprise must be signed by a certified accountant as well as the directors.The accountant must be legally qualified and registered with the Conselho Federal de Contabilidade and cannot be an independent auditor.

The financial statements should, by law, contain :

* Directors' report (Relatorio da Administracao),
* Balance Sheet (Balanco Patrimonial),
* Income statement (Demonstracao do Resultado do Exercicio),
* Statement of changes in shareholders' equity (Demonstracao das Mutacoes do Patrimonio Liquido),
* Statement of changes in financial position (Demonstracao das Origens e Aplicacoes de Recursos), and
* Notes to the financial statements including the accounting policies adopted by the company.

It should be accompanied by the auditors' report where required.Comparative figures must be shown in each statement. A publicly-held holding corporation must publish consolidated financial statements dealing with the group as a whole, together with its own financial statements, if the conditions described under "Group financial statements" are met.

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Mexico

The profession of Public Accountancy in Mexico dates from 1907, the year in which the first public accountant was licensed.The foregoing does not, of course, signify that there had been no accountants previously to maintain the books and keep a record of operations.But 1907 marked the commencement of the profession in an independent form as we know it today. In order to achieve the present state of the profession in this country, it was necessary for accountants to meet in associations until the Mexican Institute of Public Accountants (MIPA) was formed.MIPA is a federation, which groups institutes and colleges established in different cities throughout the country, and there are currently 54 institutes and colleges making up MIPA. An important advantage of MIPA is that the profession is self-regulating as regards the acceptance of accounting principles, auditing standards and procedures, and rules of professional ethics.

There are legal codes regulating the professions in general, such as the Federal Law, on Professions.The profession of Public Accountant is governed by laws, such as the Fiscal Code of the Federation. However, these and other laws have very little influence on the doctrinal and technical aspects of the accountancy profession; they rather establish responsibilities, govern the presentation of supplementary information, or establish accounting policies to be followed by companies engaged in specific fields of activity, such as banks, insurance companies, broking companies and companies with state participation.

MIPA is an active member of the International Federation of Accountants (IFAC) and of the Interamerican Accounting Association (IAA). In addition, it is recognised for its leadership among Spanish-speaking countries in the technical field, particularly in the publication and dissemination of material covering generally accepted accounting principles and auditing standards and practices.

All of the foregoing ensure that financial statements are prepared in basic conformity with international accounting standards and that audits are performed in accordance with generally accepted auditing standards similar to those established by the International Auditing Practices Committee of the IFAC.

The General Law of Mercantile Corporations regulates the formalities to be complied with by Sociedades Anonimas (which form the majority of business entities).This law provides that management should submit annually to a shareholders' meeting a report which includes, at least : (a) a report by management on the company's performance during the fiscal year, together with the policies followed by management and , if applicable, a report on the main projects in existence, (b) Balance Sheet, (c) Income Statement, (d) Statement of Changes in Shareholders' Equity, (e) Statement of Changes in Financial Position, and (f) notes to the Financial Statements which complete or clarify the information contained in the foregoing statements. Under this law, there is no specific obligation for the financial statements to be examined

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by a public accountant.However, it is good commercial practice for financial statements to be audited, and audited statements are required, for example, for fiscal purposes. The requirements of the National Securities Commission for public offerings and annual reports also demand that financial statements be audited.

Nigeria

In recent years a number of changes have taken place in the development and preparation of Nigerian financial statements.There have been important new laws which have superseded previous laws and a major change has occurred in the economic policy of the country whereby substantial controlling shareholdings held by Government in parastatals and major banks have been relinquished.This privatization exercise has not, however, affected the strict requirements involved in the preparation of financial statements.

As regards legislation, the Companies and Allied Matters Decree of 1990 has been promulgated to supersede the Companies Act of 1968, as a result of which there have been changes to the presentation and contents of, and disclosures in, published financial statements. The Nigerian Accounting Standards Board (NASB), established in 1982, is still the major body involved in setting accounting and reporting standards.It has a broad membership drawn from all relevant sectors of the economy and is charged with formulating and publishing accounting standards to be observed in the preparation of financial statements, promoting and sponsoring legislation and from time to time, reviewing standards developed in the light of changes in the socio-economic and political environment. The Taxation Authorities' criteria for determining acceptable accounting treatment are based on the requirements of the relevant sections of the Companies and Allied Matters Decree, 1990.

The form and contents of a company's financial statements are prescribed by the law embodied in the Companies and Allied Matters Decree, 1990.The Directors are charged with the responsibility of preparing the financial statements of a company which are subsequently audited.The basic contents of a set of financial statements are : Report of the Directors, Report of the Auditors, Balance Sheet, Profit and Loss Account, Statement of Source and Application of Funds, Statement of Value Added, Five Year Financial Summary, Notes to the Financial Statements, and general information such as the names of directors, the auditors, registered office and secretaries.

Comparative figures must be given where applicable.Holding companies must publish group financial statements in the form of consolidated financial statements dealing with the group as a whole.

Mauritius

Mauritius, being an ex-British Colony, has been greatly influenced by British accounting principles and practices.Most of the accountants in Mauritius are members of one or more of the six principal accountancy institutes in the United Kingdom and Ireland. Until recently, there were no local accounting

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standards and the accounting profession has looked to the Statements of Standard Accounting Practice issued in UK for guidance in determining generally accepted accounting principles which aim at showing a true and fair view of a company's financial affairs and performance.Tax laws have little influence in determining these generally accepted accounting principles.However, most companies use 30th June as their financial year-end as this coincides with the tax year-end. In 1989, the Mauritius Accounting and Auditing Standards Committee was set up to prescribe accounting standards and auditing guidelines.This has resulted in a set of standards commonly known as the Mauritius Accounting Standards (MAS).

The form and content of a company's financial statements, together with the accompanying notes as prescribed by the sixth schedule of the Companies Act, 1984, are the responsibility of a company's management. If there is any departure from the MAS, this fact, together with the reasons for the departure, should be disclosed by the directors in a note to the accounts.Failure to do so may lead to penalties. A company's financial statements are prepared by the directors to give a true and fair view of the enterprise's financial state of affairs and to present a historical record to the shareholders, annually, of the use of the company' resources and its performance in the period being reported on. The financial statements of public and non-exempt companies must contain: directors' report, income statement, balance sheet, notes to the financial statements, including the accounting policies adopted, statement of sources and application of funds, and auditors' report.

Comparative figures are required to be shown.

Holding companies are required to publish group financial statements in the form of consolidated accounts dealing with the group as a whole.

Companies listed on the Mauritian Stock Exchange also publish a Chairman's Statement giving brief details of changes in the financial position and the future development of the company.They must also adhere to the listing rules of the Mauritian Stock Exchange Limited.

Egypt

The Egyptian government enacts laws through its financial and economic body in the People's Assembly.These laws are basically intended to protect investors and companies, as well as the country's rights, and are established to acquire this protection in the light of known accounting rules and concepts. On the other hand, Egyptian accounting and auditing organisations are responsible for developing accounting concepts in Egypt.There are several organisations that research new trends in the accounting and auditing fields, which include the Egyptian Institute for Accountants and Auditors, the Egyptian Tax Society, the Egyptian Cost Accounting Society and university faculties including the Faculty of Commerce of Ain Shams University. The Egyptian Institute for Accountants and Auditors has issued auditing guidelines to be implemented by all auditors in Egypt.These guidelines act as standards that must be followed in order to standardise the auditing procedures followed for

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all companies.These standards represent the most recent development in the accounting profession.

In addition to companies, organisations required to prepare financial statements in accordance with legal and professional pronouncements include non-profit organisations and foreign companies which have a place of business in Egypt.These branches of foreign companies must have an auditor in accordance with the Companies Act, No. 159. The components of financial statements vary according to the nature of the enterprise, eg. sole proprietor, companies, partnerships, joint venture companies and limited liability companies. In the case of partnerships or sole proprietorships, the components of financial statements are not regulated by law.On the other hand, joint ventures are required to comply with International Accounting Standards.Currently, there are two laws governing joint venture companies : Operations law 159/ 1981 and law 230/1989 (which modified law 43/1974). A joint committee, combining the legal affairs committee and the economic affairs committee at the People's Assembly, is responsible for the preparation of these laws.The laws are issued after formal publication in a newspaper and approval by the country's President. The financial statements of joint ventures and joint stock companies are prepared by the company accountant.The law requires the disclosure of net profits for the financial year, the distribution of reserves, directors' bonuses, profits attributable to shareholders, employees' profit share and finally, retained earnings. The tax authorities have a limited role in the implementation of laws relating to accounting practices and the form and content of financial statements.In sole proprietorship companies, the tax authority has the right to see all the company files; in joint venture companies, the right to inspect the company's files applies to shareholders, the tax authority, and the supervising entities represented in the investment organisation or the stock market authority.

Bermuda

The Companies Act , 1981 of Bermuda stipulates that, except in certain circumstances, audited financial statements, signed by two directors, shall be presented to the shareholders in a general meeting.These financial statements, prepared in accordance with generally accepted accounting principles (GAAP) have to contain : statement of the results of operations, statement of retained earnings or deficit, balance sheet, and auditors' report stating whether in the opinion of the auditor the financial statements fairly present the financial position of the company and the results of its operations. The form and content of each of the above statements is not prescribed by law, but instead follows the GAAP.

The Insurance Act of 1978 requires all insurance and reinsurance companies to prepare audited statutory financial statements in a prescribed form and in accordance with the requirements of the Insurance Act rather than the GAAP. These include : balance sheet, statement of income, statement of capital and surplus, and notes to the statutory financial statements.The

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fundamental difference between the Insurance Act, accounting policies, and the GAAP relates to the treatment of "non-admitted assets". For Insurance Act purposes, items such as fixed assets, goodwill and deferred acquisition costs cannot be recorded as assets.

As said earlier, such financial reporting practices did not evolve from local needs and traditions;they were foisted by the foreign rulers.Primarily because of this, they were incapable of accommodating changes pari passu with new developments in the domain of trade, business, commerce and industry. In the USA and in the west European countries a number of regulatory bodies remain active to act as friend, philosopher and guide to the accounting profession while preparing financial accounts and reporting the same to various user groups.Some of these bodies are, of course, the children of the state, while many others have grown without initial recognition, support or help from the state.The plurality of professional bodies working in the backdrop of a pluralist democracy ensures a smooth and efficient functioning of the accounting profession.The third world countries have yet to wait for regulatory bodies similar to those of their western counterparts.No wonder, accounting profession and financial reporting there have yet to find a satisfactory and reliable guide in well established regulatory bodies. Besides, the working of the multinational corporations in the third world leaves much to be desired.In their accounting practices they usually follow the dictum - 'work more and reveal less'.Their minimum disclosure practice hardly has any healthy impact on the accounting and the financial systems of the third world countries. Laws relating to environmental reporting are almost conspicuous by their absence in most of the third world countries.In many such countries the quantum of depletion of forest resources caused by industries and trades (such as, Brazil's Amazonian rain forest, India's pine forests in Kumaon and Garhwal regions, Africa's dense forests in the Congo and the Nile river basins) goes on uninterrupted without any mention in the statements of accounts of such industrial firms and trades.As a result, the governments of such countries cannot devise ways and means for preserving the environment bacause of lack of reliable statistics in respect of depletion and the existence of corrective measures, if any, undertaken by the firms and trades.

Concluding Observations

When the industrial revolution was reaching every nook and cranny of the British Isles and gradually spreading to the continent of Europe, what is now known as third world was feudal, and a small part of it was even displaying some of the characteristics of the slave age.When some of the European nations founded colonies in Afro-Asia, the feudal and slave societies began to receive economic stimuli, characteristic of the capitalist market system. These societies had, thus, features of capitalism grafted on them, with the result that the so-called third world countries are now at different stages of socio-economic development.Naturally, the systems of preparing accounts and financial reporting patterns have to be different.But what is also true today is that despite differences, they exhibit some commonalities.

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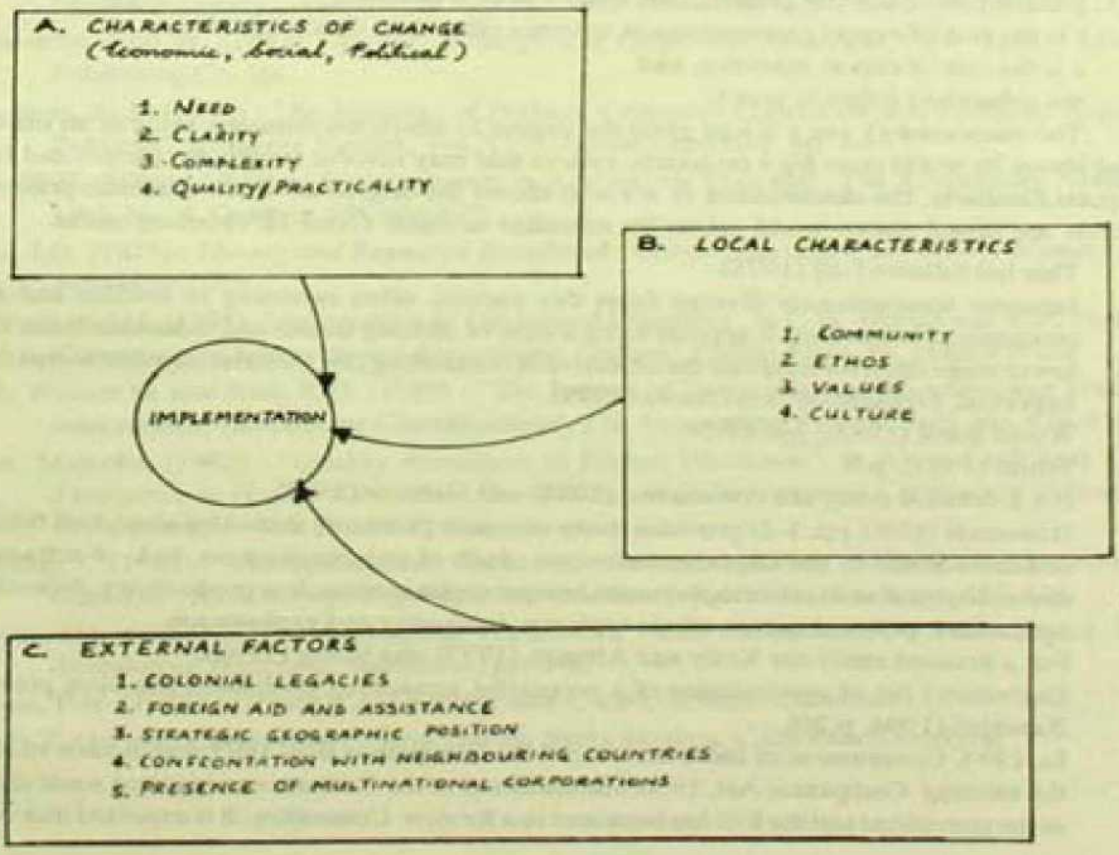
Accounting being a social activity adapting itself to social needs and changing human conditions (Mookerjee, 1992, p.59), third world countries now find it necessary to introduce changes of a fundamental nature in almost everything related to accounting and reporting in tune with the realities of the given society. Unlike western European countries where accounting education was aimed at acquiring knowledge as well as satisfying the practical needs of the industrial and commercial world (Crites, 1973; Hall, 1976; Schein, 1978; & Hall, 1982), the third world countries have so far been able to provide a system of education that teaches how to record transactions and fails to ensure coherent, relevant and useful exposition of the mass of data relating to such transactions.The third world accounting education and financial reporting systems are largely purposeless, insignificant and unrelated to the avowed objectives of national development and self-reliance.

Today much is being said of liberalizaiton of economic policy and privatization of enterprises in the public sector of the third world countries.Now that such policies are being implemented in these countries at a rapid pace, it is obvious that accounting education and financial reporting systems will have to undergo major overhauling.The revisions to be made in this respect can hardly be uniform in view of the different social realities in different third world countries.Even if it were possible to iron out the differences, it would be difficult to implement the suggested reforms (Bennett, 1992, p.20).The following figure (Fig - 3) seeks to project the factors that hinder implementation.

FIG.3 INTERACTIVE FACTORS AFFECTING IMPLEMENTATION OF ACCOUNTING EDUCATION & FINANCIAL REPORTING



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Hindrances are definitely there to the framing and implementing of an adequate policy in respect of accounting education and financial reporting. There is, however, a silver lining. The enormous amount of economic activity now taking place in the north-east and south-east regions of Asia, particularly in the countries known as 'tigers of Asia', and new shifts in the economic policies of some Asian and Latin American countries are, hopefully, drawing a large part of the third world economy very close to the centre stage of world trade. Time is now rife for a thorough updating of the accounting education and financial reporting of the third world countries in conformity with the realities of their society, polity and economy.

Notes

1. ".....the officials (of the Egyptian Civilization) recorded how much land and cattle and how many fruit trees every peasant had. The peasants were to pay taxes for all that in grain and in other products" (Krovkin, 1988, p44).
2. ".....Mesopotamia's ancient history is documented in numerous written sources, including hundreds and thousands of business, administrative accounting and legal documents ..." (Piotrovsky and Grivory, 1983, p55).
3. ".....Greek civilization witnessed the appearance of the first form of banks, the *trapezitai* which grew out of money-changers' establishments exchanging coins of different city-states. It was a reflection of the fairly high level of development of commodity-money relationships." (Piotrovsky and Grivory, 1983, p218).
4. Krueger (1978) defines this situation formally, as one where for year t, $B_t > 1.0$, and B_t is defined as below :

$$B_t = \frac{(1 + m + n + p)}{(1 + r + s)_t}$$

where m is the rate of import tariff,
n is the rate of import surcharge,
p is the rate of scarcity premium created by import licensing,
r is the rate of export encouragement schemes other than direct subsidies,
s is the rate of export subsidies, and
the subscript t refers to year t.

The numerator (1 +m + n + p) gives the degree to which the domestic price of an importable is raised above its world price by a protective system that may involve tariffs, surcharges and licences for imports. Similarly, the denominator (1 + r + s) shows the degree to which domestic prices for an exportable are raised above world prices by subsidies or other forms of encouragement.

5. This list follows Lall (1975).
6. Japanese transnationals diverge from this pattern, often investing in textiles and mineral processing. For textiles, it appears to be a case of shifting traditional industries from Japan to lower wage sites; for minerals the objective of controlling raw material supplies seems the most important explanation; see Ozawa (1979).
7. World Bank (1983), pp. 47-56.
   White (1983), p.3.
8. For a detailed study see Avramovic (1988) and Fishlow (1991).
9. Hommadi (1990, pp. 1-2) provides thirty common problems shared by almost all third world countries. Some of the important ones are : lack of industrialization, lack of infrastructure, unemployment and underemployment, low per capita income, low productivity, dependence on agriculture, political unrest, ethnic violence, inequality and exploitation.
10. For a detailed study see Kelly and Altbach (1973) and Blaug (1991).
11. Engleman's list of prerequisites of a successful accounting profession has been provided by Banerjee (1994, p.20).
12. In 1993, Government of India introduced the Companies Bill, 1993 with a view to changing the existing Companies Act, 1956. The members of the Parliament suggested some changes in some provisions and the Bill has been sent to a Review Committee. It is expected that very soon

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the said bill would be passed by the Indian Parliament and would be in operation in place of the Companies Act, 1956. The Bill introduces some welcome changes in the domain of financial reporting and disclosure.Section 326 (3) states : " A statement of all significant accounting policies adopted in the preparation and presentation of the profit and loss account and the balance sheet shall be disclosed in the company's balance sheet and where any of the accounting policies is not in conformity with accounting standards .....the particulars of departure shall be discolosed together with the reasons therefor and the financial effect thereof." Schedule XII of the said Bill states that a statement of sources and application of funds shall be annexed to the balance sheet.

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Section III

Issues in Social Aspects of Accounting

This section includes three articles which highlight the social responsibility dimension of accounting.

Accounting is a multi-person activity and in order to attune itself to social realities of the business, it must not be limited to portraying the self-interests of contracting parties within firms. It must gradually expand in scope to represent the impact of business activities on third parties. In this regard, P. R. Chowdhuri in his paper ***Corporate Social Responsibility Reporting : A Cost Benefit Analysis*** *clarifies the evolving concept of corporate social responsibility and delineates the important areas of corporate social performance. Social responsibility reporting can effectively supplement traditional financial statements so that they can go beyond events taking place within the company and attempt to disclose the total impact of corporate activities on society and environment. Social cost benefit analysis can be very useful in assessing costs/losses and benefits/gains to society as a whole resulting from the acceptance of a particular programme. The author concludes that professional bodies and academic institutions should come forward for research in this area of accounting to solve the measurement problems that do not permit provision of extensive quantitative information. Corporate legislation and accounting standards should also be used to make social responsibility reporting mandatory in companies.*

S. Sikidar and P. H. Hazarika in their paper ***Human Resource Accounting in a Non-profit Making Organisation*** *focus on the operational aspects of human resource accounting which is one of the areas of corporate social responsibility reporting. The authors use the model developed by Dinesh Gupta to evaluate cost and benefit components of a section of employees of Gauhati University, a non-profit organisation. In doing so, they mention the assumptions to be made in developing a model relevant to service entities and the measurement constraints involved.*

A. K. Sengupta in his article ***Accounting for Natural Resource Depletion and Environmental Degradation****, discusses yet another significant facet of corporate social reporting, namely, accounting for impacts of business activities on the quality of the natural environment.*

The author states that the technique of depletion accounting varies according to the nature of resources in terms of flows and serviceability. It must be designed to take into account alleviating factors as well as a possible increase in resource productivity owing to technical progress. For the

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purposes of accounting for natural resource depletion and impairment of environmental quality, economic models can be used to effect. But sound statistical techniqes are yet to be developed. It will also be necessary to translate some technological variables and geological parameters into easily manageable economic variables and accounting figures. Specific accounting problems may be faced in respect of enterprise or economic unit allocation and apportionment of costs. In such instances, region-wise estimation of costs should serve as the basis for a formal unit-wise incidence of cost depending on the design of a suitable allocator for this purpose.

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Corporate Social Responsibility Reporting : A Cost Benefit Analysis

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Introduction

Awareness of the social responsibility of business has increased during the last three decades. It has now become important for a business entity to identify society's changing needs and its priorities, apart from deciding on the business investment that will yield maximum return in terms of profit. The concept of social responsibility has traversed three distinct historical phases (Caroll, 1977).

1. The phase of the classical or profit maximising view : The primary criteria of business performance are economic efficiency and growth in the production of goods and services.The business managers have but one single objective — to maximise profit. The individual's drive for maximum profit and the competitive market place would interact to create the greatest aggregate wealth for a nation and therefore the maximum public good. The same process would maximise both individual and social welfare.

2. The phase of the managerial view : According to this view, corporate managers are responsible not only for maximising stockholder's wealth but also for maintaining an equitable balance among the competing claims of customers, employees, suppliers, creditors and the community.

3. The phase of the quality of life view : This view adequately explains the enterprise's social involvement and thus has become popular in recent years. Society's principal requirements of business were to produce increasing amount of goods and services and thus raise continuously the standard of living. But in course of time, some social problems, like pockets of poverty, deteriorating cities, air, water and noise pollution, consumer's dissatisfaction, etc. however, have developed as direct and indirect results of economic success. Economic abundance in the midst of a declining social physical environment does not make any sense. As a result, a new set of national priorities stressing the quality of life appears to be emerging. This view emphasises that the enterprise should react to the total social environment and not merely to the market. So it is the expectation of the day that business will provide goods and services efficiently and at a profit alongwith its performance in social terms. Since the 1960s the general trend has been towards more social involvement by corporate bodies. Society wants business as well as other major institutions to assume significant social responsibility.

Thus, in earlier periods, the mission of business was strictly an economic one. But subsequently, public attitude shifted sharply towards social concern and this was reflected in extensive social demands made on business. Keith Davis (1975) propounded five social propositions which are as follows : (a)

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social responsibility and power, (b) an open-system interface, i.e. open receipt of inputs from society and open disclosure of its operations to the public, (c) calculation of social cost (the basic proposition is that social costs as well as social benefits of an activity, product or service should be calculated and considered in order to decide whether to proceed with it or not), (d) the user pays (this proposition assumes that a fair consumer (user) price of a product or service includes all costs of production including social costs and the consumer (user) pays for the effects of his/her consumption on society. (e) social responsiveness as citizens (business and industry are importnat social institutions and they have responsibility towards society like other citizens).

Social responsibility introduces a new social performance criterion for business, so that companies respond to both the economic needs and the social goals of a changing society. This double-edged social contract between business and society reflects the core idea of corporate social responsibility

Area of Social Responsibility

Major areas of social performance as outlined by the National Association of Accountants' Committee on Accounting for Corporate Social Performance, 1974, are given below in a summarised form :

(1) Community Involvement Programme : This scheme includes (a) corporate support of educational institutions, cultural activities and recreational programmes, health and community welfare, etc.; (b) public and private transportation facilities; (c) health services, housing facilities, improving of living etc.; (d) aid to the physically handicapped persons, child care, minority development etc.; (e) food programmes for the aged, the infirm, the disadvantaged children etc.

(2) Human Resources : In this programme come (a) employment practices including equal job opportunities to all, (b) training programmes, (c) promotion policies (e) employment continuity (f) remuneration and other benefits (g) safe, healthy and pleasant working conditions (h) two-way communication for exchange of ideas, plans, suggestions, grievances etc.

(3) Physical Resources and Environmental Contributions : Under this are included (a) timely elimination of pollutants in the air, water and sound areas, (b) disposal of wastes, and (c) use of scarce resources and conservation of scarce materials etc.

(4) Product or Service Contributions : This programme includes (a) completeness and clarity of labelling, packaging and marketing representation, (b) timely recalls, repairs and replacement, (c) consumer's education through literature and media programmes (d) responsiveness to consumer's complaints (e) product quality and product safety assurance, (f) content and frequency of advertising (g) constructive research works for avoiding and minimising social and environmental programmes.

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Social Responsibility Reporting and its Objective

Social responsibility reporting, according to F.E. Perry's Dictionary of Banking (1983) is the reporting of the cost incurred in complying with anti-pollution, safety and health and other socially beneficial requirements, and its endeavours to protect society, its amenities and the environment. Ralph Estes (1976) defines social accounting as the measurement and reporting, internal and external, of information concerning the impact of an entity and its activities on society. Belkani (1984) has given the following observation on socio-economic accounting : "Socio-economic accounting results from the application of accounting in the soical sciences. It refers to the ordering, measuring, analysis and disclosure of the social and economic consequences of governmental and enterpreneurial behaviour. It includes these activities at the macro and micro level. At the micro level, its purpose is the measurement and reporting of the impact of organisational behaviour of firms on their environment. At the macro level, its purpose is the measurement and disclosure of the economic and social performance of the nation. At the micro level, the socio-economic accounting includes, therefore, financial and managerial social accounting and reporting, and social auditing. At the macro level, socio-economic accounting, includes social measurement, social accounting and reporting and the role of accounting in economic development". Thus, this reporting aims at measuring (in monetary and/or non-monetary units) both adverse and beneficial effects of such activities both on the firm and / or those affected by the firm. Concern for the social, human and environmental needs would require any firm to measure the social costs and benefits vis-a-vis its private costs and benefits. The object of the reporting is to consider these social costs and social benefits in order to determine net social gain or loss. According to Chen (1975) "as a steward, management's responsibility should be evaluated in terms of both profit and the accomplishment of social objective". The socially relevant information need to be communicated to the social groups both within and outside the firm. It provides useful information to a variety of persons concerning the impact of the corporation and its activities on society. Social responsibility reporting is the need of the hour in the light of the growing importance of the concept of social responsibility of business.

Financial statements prepared in the conventional manner have served a very useful purpose and will continue to fulfil the objectives for which they are intended. However, they have two limitations. First, the financial statements present only the commercial aspects of the activities of an undertaking. They do not disclose the total impact of those activities on society and on environment. Secondly, they depict events which have taken place within the four corners of an undertaking. The true purpose of a social cost-benefit study is to determine whether or not a particular project is socially worthwhile. The question now before us is whether such a view is possible even in evaluating projects of commercial and industrial activity. As these projects also provide some benefits on the one hand and create some odds and hardships on the other hand, to the community, these must be quantified and valued in order to make a proper evaluation of the project. To say this is not to minimise the importance of

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commercial studies based on financial return. Such studies will always have an importance. A social cost-benefit analysis, therefore, will not replace the existing techniques of financial analysis but supplement and strengthen such techniques.

Cost Benefit Analysis : Its Objective and Dimension

The basic idea of cost-benefit analysis (CBA) is to decide on the worth of a project involving public expenditure. The province of cost-benefit analysis is usually confined to the public projects because the advantages and disadvantages of the same are defined in terms of social gains and losses. The need for social-cost benefit analysis arises due to the reason that the criterion used to measure commercial profitability that guides project investment in the private sector [by Net Present Value (NPV) or Internal Rate of Return (IRR)] may not be an appropriate criterion for public or social investment decisions. Private investors are more interested in minimising the private costs and maximising the private gains. Both are valued at prevailing market prices. But the existence of externalities in benefits and expenses introduces bias in the market price-based investment decisions. Total benefits expected from a project to the society are composed of private benefits (internal profits or returns) accruing to the owner of the project plus external benefits (known as externalities or spillovers) to the society. Similarly, total costs to the society equal internal costs borne by the owner plus the external costs suffered by the society. The calculation or measurement of social benefits and costs is no doubt difficult. However, it should be noted that both benefits and costs relating to a project can be classified under two heads : (a) direct benefits and costs and (b) indirect benefits and costs.

(A) Direct benefits and cost : The project under consideration would yield some benefits which directly accrue to the consumers. In the case of the opening up of new roads and water-ways, direct benefits may be increased supply of consumer and producer goods in the home market because improved transport facilities have helped to bring these products abundantly and easily to the home market. Similarly, when the government decides to set up a new factory, the primary benefits of the project are likely to be the employment opportunities that it creates, development of the economy (in future) etc. Like direct benefits there are direct costs as well. The operation of a new plant requires acquisiton of land (i.e. land cost), purchase costs of raw materials, other service costs, interest payments on loans, depreciation or maintenance costs and so on. These direct costs are incurred to get the project started and keep it going.

(B) Indirect Benefits and Costs : Indirect benefits and costs indirectly accrue to society due to the adoption of a project where the project only helps to derive and bear these. To illustrate the matter, suppose, a new fertilizer plant has been set up in a relatively under-developed region by the government. As a result, the government builds up new roads, hospitals, houses etc. in the adjoining areas to provide basic amenities to its employees and other inhabitants of the region. Their standard of living definitely improves. Besides there may

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be other indirect benefits as well. For example, new schools and colleges are opened in the area to accommodate employees' children. Similarly on the cost side, the project gives rise to some indirect costs. One very important example is pollution cost. The smoke that the fertilizer complex emits, and the wastes that it generates make the environment polluted. This pollution is definitely unhealthy. Therefore the project or plant imposes some indirect costs.

From the direct and indirect benefits and costs, the aggregate net benefit of a project can be deduced :

Aggregate Net Social Profit = Σ Direct benefit + Σ Indirect benefit — Σ Direct cost — Σ Indirect cost.

The next task is to value them in terms of money. In case of universal perfect competition, prevailing market price can be used to express benefits and costs in monetary units. But in all sorts of market imperfections i.e. in monopoly/monopsony situation, the market price is not equal to social opportunity cost. Under such circumstances the appropriate prices are "shadow prices" or "accounting prices" *. These prices are derived from existing market prices by eliminating the inherent imperfections. They indicate the true or actual social opportunity costs. These are also known as "social prices".

So far we have assumed that costs and benefits are tangible. But any project may also yield some intangible flows along with tangible costs and benefits. In that case measurement of intangible becomes very difficult. Value judgement is, perhaps, the only way of achieving this. It should be recalled that the need for discounting arises because benefits and costs are generally gained and incurred over a number of years. In CBA discount is very crucial. A social rate of discount (SRD) or social discounting rate (SDR) is used for this purpose. The rate may be (i) market interest rate, (ii) marginal product of capital, (iii) value judgement, (iv) estimated rate with the help of past estimates that the government made, (v) internal rate of return (IRR) etc. But the debate over the choice of the rate continues.

Social Cost Benefit Analysis

The classical view of cost-benefit measurement as applied to the corporation was that business wanted to maximise profits. This concept postulates that the most efficient use of corporate resources, which produces the greatest net profit for the shareholders, also creates the maximum benefit for society.

* Given that resources are limited, the use in one project will entail an opportunity cost—the benefit they would have yielded in an altenative use. Whatever the objective function, then, there will be a cost involved in meeting that objective by the use of resources in one project rather than in another.The ratio of the two WTPs (willingness to pay) for these alternative uses is given the term "shadow" or "accounting"price. These shadow prices can be thought of as the marginal rate of substitution between the outputs in question, the amount of one output which we have to sacrifice in order to obtain another output. An extra unit of health may mean one unit of less education, one extra unit of water for irrigation is one unit less for direct consumption. Health and education are outputs but they are not always sold on the market.There is no observable price, but there is a shadow price, since each must have an opportunity cost in terms of some foregone alternative". [Cost Bendfit Analysis - Theory and Practice : A.K. Dasgupta nd D.W. Pearce - English Language Book Siociety / Macmillan Education Ltd. London : (1986)]

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In this view therefore, profit is the measure of the extent to which the corporation is discharging its social responsibilities. The rationale for the concept of net profit as the appropriate cost-benefit measure for the corporation is that under competitive conditions, profit is the measure of efficiency. It indicates that the value of corporate output to society is greater than the input taken from the society in producing goods and services for the society. Therefore maximisation of profit means that business is meeting its social responsibilities.

To this point the cost-benefit calculation has been viewed in terms of a single objective viz. profit maximisation. This limited criterion still guides many business organisations. But a growing number of firms have expanded their list of objectives to include growth, share of market and corporate image as well as other goals especially suited to particular management contexts. Literally hundreds of statements have been made by business leaders on the need for business to go beyond traditional private profit analysis and respond to demands for fulfilling a variety of social responsibilities. This point has been raised because we know something about the products and services provided by a firm and we can see the reported revenue but we do not know the magnitude of "consumers' surplus" resulting from bargain purchase or "consumers' deficit" resulting from fraud, misleading advertising or unsafe products. Again, we also can know the costs that the company has to pay for, but we are not told about the damage it causes that it does not pay for pollution, noise, discrimination, fraud, bribery etc. So we need an accounting model that systematically reflects the worth of all resources consumed, including those resources or values which are free to the consuming entity and the worth of all benefits produced including those that provide no compensation to the producing entity.

To measure the full effect of the entity on society each significant social benefit provided and social cost incurred by an entity are required to be identified and quantified. The financial accounting model, at present available, generally reflects the view of the entity looking out, benefits (products and services) provided to society shown in the form of revenue earned and the costs measured only by the entity's expenditures. But the benefits to society would better be measured by the values or utilities actually received by society while costs would reflect all the full harms to society, and not only those for which the entity pays.

Social cost benefit analysis (SCB) is an approach developed primarily by economists for evaluation of projects having important effects on society. It was developed because one could not rely on private profits to reflect accurately net social benefits which might be due to unpriced costs and benefits (externalities). This is intended to be a systematic framework — a set of operational guide-lines to assess the gains (benefits) and losses (costs) to society as a whole resulting from the acceptance of a particular programme.

The social costs and benefits can be classified in three sectors viz : social costs and benefits to (i) employees (ii) community and (iii) general public.

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Social benefits to employees include medical and hospital facilities, township and housing including concessional electricity, water-supply, education facilities, recreational and cultural activities, concessional transport, training and development, holiday benefits, retirement benefits and bonus and other benefits. The social costs include lay-off and involuntary termination and extra hours worked by executive but not paid.

Social benefits to community include taxes paid to local authorities, environmental improvements, welfare activity for the community, generation of job potential and business generation for community. The social costs to community include increase in the cost of living in a particular area, for example, in the vicinity of steel plant and the deterioration of environment.

Social benefits to general public include taxes and duties paid to Central and State Government, business generation, foreign exchange earned and saved and research and developments efforts. Social costs to general public include central services and facilities consumed and expenditure in foreign exchange.

Now an attempt is to be made to quantify them and to determine the amount of net social income/loss which would finally give the green signal for acceptance/rejection of a scheme.

A comprehensive social benefit/cost model as developed by Ralph Estes (1975) is outlined below. It should be emphasized at the outset that this model is somewhat idealistic and may not be presently practical for all firms. The objective here is to suggest a standard, a goal for social reporting. Nevertheless much of the information is available in every corporation and efforts should be there to prepare adequate estimates of the same.

The components of the model are discussed below.

Social benefits include the following items :

(1) **Products and services provided by the corporations** are purchased by customers and are considered as benefits to society. Such benefits are valued at the exchange prices usually arrived at in response to demand and supply factor. Included in this category of benefits are facilities, equipment and space provided to other elements of society for which rent is received. Upward adjustments, reflecting "consumers' surplus" are required when exchange prices do not adequately measure benefits. Only direct effects from products and services provided are valued. Significant indirect effects should be reported in footnotes but not integrated into the model since they are not actually provided. Downward adjustments are required when the exchange price exceeds the utility provided. This is required when purchasers have inadequate information, when products are dangerous or unsafe, when benefits are exaggerated through false advertising and promotion or through extortion etc. Downward adjustments should be made for products that pollute or in other ways are detrimental to society.

Any benefits to be realized in future periods should be discounted to present value. The same principle is also applicable for social costs.

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(2) **Employee benefits** : The primary employee benefit is of course employment itself. But this may not be simple to value, for the benefit of employment includes all compensation plus training received and experience gained. In addition, there are fringe benefits including social security pension plan, insurance plans, workmen's compensation insurance, educational assistance etc. In valuing, focus should be on the utility to the employee beneficiary.

Direct compensation provides utility in the amount paid or the outlay cost to the company. Benefits provided through social security and pension plan contributions, unemployment allowances paid, workmen's compensation insurance premium should also be measured by the amount paid out by the company. When a company makes payments for, or on behalf of employees, the benefits provided should be roughly equal to the payment amounts. Training provided through formal programmes or on-the-job training may be valued at the cost employee would have incurred for equivalent training at technical and vocational institutions.

Certain company programmes provide savings to employees for necessities, for example, lunch and tiffin at lower prices, company-subsidized housing, etc. The measurement of such benefit is done by taking the difference between the average price for the good or service without company programme and the average price charged by the company.

There are some other benefits termed as psychic benefits such as rewarding work conditions, valuable contacts, public respect, feeling of power and authority (for police officers, politicians, airline pilots) and feeling of accomplishment (for artists, teachers, authors) enjoyed by the employees for their association with the companies or institutions or respective services. The values are estimated on the basis of employee surveys (through questionnaires and interviews) and shadow pricing.

(3) **Staff equipment and facility services donated** : Company employees contribute to society on behalf of the company when they perform services to community organisations, participate in professional activities, assist civic programmes and the like. Firms sometimes allow community groups to use otherwise idle equipment and facilities. Benefit may thus be provided even though there is virtually no cost to the firm. The real measure of value is the utility received by the beneficiary. The value of these benefits may be estimated as the amount of rent or cost the user would have paid if they had rented or hired these facilities.

(4) **Environment improvement** : Benefits accrue to society when the companies improve environment by free-plantation, cleaning polluted water, not allowing wastes, burnt oil and other poisonous things fall in the nearby rivers or canals, recycling of wastes in the factory, controlling smoke emitted from chimney etc. The company is charged for the social costs of environmental damage done and hence credit is to be given for improvement of environment. Valuation is difficult for these benefits and is probably not accurately reflected by the amount of outlay. Only estimates may be made on the basis of community surveys, shadow pricing and economic studies.

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Protecting the environment is now a permanent item on many corporate plans and agendas. The process of controlling pollution is an expensive proposition. As such, polluting industries have to design pollution control equipment to manage handling of hazardous waste and monitoring air, water, noise and biological environment. Waste control, disposal of wastes and recycling of wastes and exhausts within the factory, has to be planned, organised and rendered as a continual effort so that it yields reduction of cost and enhancement of productivity.

Reduction of social costs due to air, water and noise pollution ($a_1 + w_1 + n_1$) = Social Benefits (M) accrued to the society.

$$M = x + \Delta e + \Delta f + \Delta \theta$$

Where, x = Value of environmental improvements
Δe = Increase in efficiency
Δf = Increase in productivity
$\Delta \theta$ = Increase in profitability.

To arrive at the value of environmental improvement, it is required to estimate

a) nature of effects of improvements
b) average numbers affected
c) monetary measurement of the result.

Suppose, noise pollution has been averted by designing a devise by a company

a) Average no. of employees and public benefited = N

b) Monetary value of the benefit for this per man = R

Total benefits accrued for this = N x R

I) Economic efficiency $= \frac{O}{I}$, Where O is output, I is input.

II) Productivity is a function of mental and physical wellbeing.

Assuming an additive model for productivity and considering f (x, y) as a function of mental and physical well being we have

$$f(x,y) = g(x) + h(y)$$

Where g (x) is a function of mental well being
h (y) is function of physical well being.

III) Profitability increases in direct proportion to productivity.
$\theta = kf$, where, θ is profitability
k is an arbitary positive constant.

So, for mental and physical well being, attempts should be there, to avert air, noise and water population and to develop and maintain improved environment.

5) **Other benefits** : These benefits may include programmes as free day-care centres, special assistance to minority enterprises, sponsorship of public interest television programme etc.

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Social Costs

1) **Goods and materials acquired** - Raw materials acquired by an entity represent a sacrifice to society to the extent of the value in alternative use. Some raw materials are fixed in supply for example, fuel, these can not be replaced ; others can be replaced over several years, for example - trees and some others can be regenerated such as food crops. Possibility of replacement and the substitutability of other resources are important consideration in valuation of such materials. For example solar energy may become available at a cheaper rate which would devalue fuels. However difficulty is there for measuring the sacrifice or cost to society of the consumption of raw materials. An operational approach might be that materials with short replacement cycle may be valued at replacement prices minus estimated producer's surplus but value of those with longer replacement cycle is to be adjusted so that development of substitutes can be reflected.

2) **Labour and services used** : The cost to society of human services (services of employees, labourers, executives and outside professionals) used is the sacrifice in time and efforts made by the employee. This can be estimated by the benefits that they could obtain in alternative employment and services. The problem is the measurement of most valuable alternatives. So, it may be reasonable to value employee services and activities at the amount paid for them.

3) **Discrimination** : There may be two forms of discrimination in employment in an organisation (1) external discrimination/or discrimination in hiring, and (2) internal discrimination or discrimination in placement, promotion and training etc. External discrimination is a direct social cost which is estimated as the present value of income lost and the value of experience foregone and exclusion of other positive aspects of employment. The social cost of internal discrimination is the present value of lifetime sacrificed income and experience caused by a delay in promotion and advancement. Here the problem is that the managers are reluctant to admit that it exists in their departments and so discrimination costs are difficult to be estimated.

Cost of discrimination to the employees CD = Present value of expected lost earnings for affected individuals.

$$CD = \frac{E_1}{(1+K)} + \frac{E_2}{(1+K)^2} + \frac{E_3}{(1+K)^3} + \cdots\cdots\cdots + \frac{E_n}{(1+K)^n}$$

$$= \sum_{\substack{i=1 \\ t=1}}^{n} \frac{E_t}{(1+K)^t}$$

Where E_t = expected lost earnings due to discrimination.
t = time period
K - discounting factor.

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4) **Injuries and illness related to work** : The social cost of work-related injuries and illness may be estimated as the present value of expected future earnings lost as a result of injuries, illness and death. The direct cost to society for these is the sum of the present value of lost earnings, lost or delayed experience, cost of delayed promotions ; the out-of-pocket costs to the injured and the net value of pain, sufferings, discomfort and frustration. A representative sample of employees may be surveyed to get at the value of pain, sufferings etc. i. e. the amount each would have to pay to avoid or the amount each would require to undergo treatment for a given illness or injury. It is desirable to obtain enough observations to determine or calculate average value for different age groups, economic class and the like.

Cost of injuries and illness $= P = c_1 \times a \times n$

Where, P = Payment for prevention,

C_1 = Cost of injuries, illness etc. to the employees,

a = Probability of such injuries and illness for not taking preventing measures,

n = effectiveness probability of treatment.

Therefore, $C_1 = \frac{P}{a \times n}$

5) **Public service and facilities used** : Share of public service and public facilities enjoyed by an organisation generally includes the services and facilities provided by various levels of government — police and fire protection, securities regulation, roads and highways, national defence, etc. cost of such services and facilities is generally estimated as the amount of taxes paid, this amount should be adjusted for unusual costs caused by unsafe plants, inadequately secured assets or for excessives or less than normal usage in selected areas. For example a jewellery shop requires greater police protection than a broker requires. However, such estimation is not an easy task.

6) **Environment damage** : The corporation imposes damages on the environment through the production and waste disposal processes. Damages are aslo caused by vehicles like trucks, automobiles and also some advertisement. These are in the form of air and water pollution, noise, plant life destroyed, impairment of living conditions etc. "Air pollution may require estimates of lost utility due to pollution related illness (medical cost, lost productivity, shortened life span and pain and discomfort), damage to exterior finishes, impairment of living conditions and plant life damaged or destroyed. The social cost of noise may be based on estimates of the value of current discomfort and long-term hearing impairment. Natural damage may be estimated as the lesser of two quantities — the value of lost utility and the cost of restoration to the original condition".

The approaches to measurement of environmental damage are surveys, analysis and estimation of prevention or restoration cost.

Survey may be used to determine the amounts people would pay to avoid pollution or the amounts they would have to be paid to endure pollution.

Analysis is an encompassing technique that seeks to pull together information from a variety of sources. For example, the cost of air pollution to home owners might be estimated by an analysis of lost market value (decline in property values). Partial costs of water pollution may be estimated through analysis of the number of fish killed and their market value. Cost of noise pollution may be estimated on the basis of inefficiency, absenteeism, impairment of hearing etc. So, it is clear that analysis is a powerful tool for estimating social costs and benefits from the available data.

In social accounting it is required to estimate the cost of preventing damages, the cost of repairing or undoing damage done, for example, cost of air pollution control and abatement equipment, water treatment facilities and noise-mufflers etc.

Surrogate valuation and shadow pricing may have some application in determining the social cost of environmental damage.

Cost of Environmental Damage (C_{ED})

$$C_{ED} = \sum_{i=1}^{n} a_i + \sum_{i=1}^{n} w_i + \sum_{i=1}^{n} n_i +$$

= Total cost of air pollution + Total cost of water pollution + Total cost of noise pollution.

$$\sum_{i=1}^{n} a_i = a_1 + a_2 + a_3 + \ldots\ldots\ldots\ldots\ldots + a_n$$

Where, a_1 = Cost of treatment and curing diseases like asthma, bronchitis, cancer etc. caused due to air pollution.

a_2 = Repairing and maintenance cost of damages caused to historical buildings, sculptures, monuments etc. due to air pollution.

a_3 = Cost of decline in property values in urban areas.

a_4 = Cost of prevention of damage to green vegetation.

and so on

$$\sum_{i=1}^{n} w_i = w_1 + w_2 + w_3 + \ldots\ldots\ldots\ldots\ldots + w_n$$

Where, w_1 = market value of fishes killed due to highly pollutants discharged in the river, canal etc. by the industries (pulp industry, chemical industry etc.)

w_2 = Cost of cleaning and purifying of this polluted water and making the same suitable for human consumption and for the breeding of fish.

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W_3 = Cost of preventing the slow destruction of microscopic plants which are the major sources of oxygen and food for many marine species.

and so on

$$\sum_{i=1}^{n} n_i = n_1 + n_2 + n_3 + \ldots\ldots\ldots\ldots\ldots nn$$

Where, n_1 = Cost of medical treatment for overcoming sleep disturbance.

n_2 = Cost of hear-rings required to be used for abatement of normal hearing.

n_3 = Cost of medical treatment for mental/nervous diseases caused due to noise pollution.

n_4 = Compensation payments to the employees for any problem or trouble developed due to noise pollution and so on.

7) **Other resources used** : Besides the usual purchased materials this category includes utility contained in unpurchased goods and materials that a firm can consume. There may be donated goods, some public goods, stolen goods and those accidentally and purposely destroyed for which payment is not made.

8) **Payments from other elements of society** : This type of payments includes the payments made by customers, lenders, investors and others for the products and services provided by the firm. In this payment they are sacrificing the utility that such purchasing power could command. This sacrifice is a cost to society vis-a-vis the firm.

9) **Other costs** : Such costs are damages caused by "political bribes, kickbacks, price-fixing, sabotage of competitors, and other forms of white collar crimes".

Some products, dangerous drugs for example may fail to provide any positive benefits to the society and so should be included in social costs.

The main problem in social accounting/reporting is the lack of valid and reliable measurement tecniques. Corson and Steiner's (1974) survey cited inability to develop acceptable measures of performance and inability to make universally acceptable cost benefit analysis as the two most important obstacles in development of social audit.

Social measurement often requires valuation of non-market goods, services and effects. Exchange or market prices are considered to be the foundation of business accounting. But in some cases values used by the accountants do not reflect exchange price, for example depreciation, bad debts etc. Exchange prices are often not available, and even if available, are not good indicators of social value. So we must resort to other measures of social benefits and costs. The general approaches are surrogate evaluation, survey techniques, restoration or avoidance cost, appraisals, court decisions, analysis and outlay cost (Estes, 1976).

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A] Surrogate Valuation — When a desired value cannot be directly determined, we may estimate instead the value of a surrogate—some item or phenomenon that is logically expected to involve approximately the same utility or sacrifice as the item in which we are interested. For example, to estimate the value of building facilities loaned by a corporation to civic groups, we could obtain a surrogate valuation by determining the amount of rent such groups would have to pay if they rented commercial facilities having the same utility.

B] Survey Techniques — A number of survey techniques are available for social measurement. These involve obtaining information in some way from those affected—those elements of society who make the sacrifice or who receive the utility we want to value. These tecnuques may be (1) to ask individuals directly what something is worth to them, (2) to ask the respondent to locate or place the item of interest in an array of other items with established prices, and (3) to distribute a questionaire to the persons affected for necessary information and data.

C] Restoration or Avoidance Cost — Certain social costs may be valued by estimating the monetary outlay necessary to undo or prevent the damage. Some effects, such as pain and discomfort, cannot be undone. When these are involved, we must supplement the restoration cost estimate with estimates of such additional damage. But when the damage can be fully repaired or prevented, the restoration or prevention cost may represent the maximum value we can reasonably assign to the effect.

D] Appraisals—Independent appraisals may be useful for valuing certain goods, building, and land. These will often reflect nothing more than an expert estimate of market value and are thus analogous to surrogate valuation performed by an outside expert.

E] Court Decisions — Awards for damages in court proceedings have an obvious appeal as indicators of social value. They are certain in amount and identified with specific social costs.

F] Analysis — Many times an economic and statistical analysis of available data produces a valid and reliable measure of value. Value (cost) of discrimination has similarly been estimated by calculating the present value of expected lost earnings for affected individuals.

Proposed Approaches in Social Accounting and Reporting :

A number of approaches have been suggested through which social information can be reported. Some of them are as follows :

1. Approach suggested by Dilley and Weygandt
2. Approach suggested by David F. Linowes
3. Approach suggested by Lee Seidler
4. Social statement approach (suggested by Clark C. Abt).
5. Approach suggested by Ralph Estes.
6. Approach suggested by Colantoni, Copper and Deitzer
7. Goal-oriented Social Reporting Approach.

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Dilley and Weygandt (1973) have developed a model to present the information in the format called Social Responsibility Annual Report (SRAR). In their development of SRAR, they have structured several sub-reports. These reports contain the occupational health and safety record, minority and female recruitment and promotion patterns, environmental and pollution consequences of production activities and community relations efforts, such as charitable contributions and facility beautification. It has included a statement called statement of fund flow for socially relevant activities. The statement contain environmental expenditures and social expenditures. This model reflects the benefits and damages conferred on society and not on a firm only.

David F. Linowes (1973) has proposed a Socio-Economic Operating Statement (SEOS) to accompany an organisation's regular financial statement. Linowes' statement would report detriments netted against improvements in each of the three categories : relations with people, relations with environment and relations with product.

Lee Seidler's Approach (1975) has developed two social income statement formats : one for profit-making organizations and another for non-profit organizations.

In addition to reflecting the contribution of a profit-seeking entity from its basic economic activity, the social income statement adds socially desirable outputs for which no money is received and deducts costs that the entity imposes on society but does not pay for. The result is a net social profit/loss figure reflecting the net contrbution of the entity to society.

For non-profit organizations the social income statement has two sections— one for benefits to society, another for costs to society.

The social statement approach, suggested by Clark C. Abt, (1971), had three parts showing social benefits and costs to staff, to community and to general public, respectively. The net social income is the algebraic sum of net social benefits after setting off social costs to the above three constituents of the society.

Ralph Estes (1976) has developed a comprehensive social benefit/cost model which matches social benefits and social costs generated by an organisation and shows the resulting net surplus or deficit to society. The formats developed by Clark.C. Abt. and Ralph Estes are given below.

Format -I

Abt Associates Inc. Social and Financial Balance Sheet [Figures in rupees]

	Current year	Previous Year
Assets		
Staff		
Staff Available within One Year		
Staff-Available after One Year		
Training Investment		
Less : Accumulated Training Obsolescence		
Total		

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	Current Year	Previous year
Organization		
Creation and Development of		
Organization Research		
Child Care Development		
Social Audit Development		
Total		
General Public and Community		
Public Services Paid for Through Taxes		
(Net of Consumption)		
Total		
Stockholders		
Cash		
Accounts Receivable Less Allowance for		
Doubtful Accounts		
Unbilled Contract Cost and Fees		
Other Current Financial Assets		
Other Long-term Financial Assets		
Total		
Physical Assets :		
Recreation Centre		
Land and Improvements		
Buildings, and Improvements		
Equipment, Furniture and Fixtures		
Total Fixed Assets		
Less Accumulated Deprecialtion		
Total		
Liabilities		
Staff Wages Payable		
Organizational Financing Requirement		
Environmental Resources Used through Pollution :		
Paper		
Electricity		
Commuting		
Notes Payable (Current)		
Accounts Payable & Accrued Expenses		
Accrued Expenses		
Federal Income Taxes		

	Current Years	Previous Year
Notes Payable (Long-Term)		
Leasehold Interest in Property		
Equity		
See statement below for staff financial equity that is not a social asset or social liability.		
Staff Stockholders Equity :		
Common Stock		
Additional Paid-In Capital		
Retained Earnings		
Total		
Non-staff Stockholders Equity :		
Common Stock		
Additional Paid-In Capital		
Retaned Earnings		
Total		
Total		

Abt Associated Inc. Social and Financial Income Statement

Benefits	
Contract Revenue and Other Income	
Federal Services Consumed	
State Services Consumed	
Local Services Consumed	
Environmental Resources Used through Pollution	
Electricity	
Commuting	
Paper	
Total	
Staff :	
Salaried Paid for Time Worked	
Carrer Advancement	
Vacation and Holidays	
Health and Life Insurance	
Sick Leave	
Retirement Income Plan	
Parking	

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Tuition Reimbursement
Food Service
Quality of Work Space
Child Care
Credit Union
Recreation Center
Total

Clients
Value of Contract Research
Professional Staff Overtime Worked But Not Paid
Federal Taxes Paid by Company
State and Federal Tax Worth of Net Jobs Created
State Taxes Paid by Company
Contribution to Knowledge
Total

Community :
Local Taxes Paid by Company
Local Tax Worth of Net Jobs
Created
Environmental Improvements
Reduced Parking Area
Total

A. Total

Costs : Current Year Previous Year

Company/Stockholders :
Salaries Paid (Exclusive of Training
Investment and Fringe Benefits)
Training Investment in Staff
Direct Contract Cost
Overhead/General Administrative-Expenditures (not Itemized)
Vacation and Holidays
Improvements, Space and Environment
Federal Taxes Paid
State Taxes Paid
Local Taxes Paid
Health and Life Insurance
Sick Leave
Food Service
Child Care
Tuition Reimbursement

Miscellaneous and Public Offering of Stock
Interest Payments
Income Foregone of Paid in Capital

Staff :
Opportunity Cost of Total Time Worked
Absence of Retirement Income Plan
Layoffs and Involuntary Terminations
Inequality of Opportunity
Uncompensated Losses Through Theft
Reduced Parking Area.

Clients :
Cost of Contract Work to Client
Federal Services Consumed
State Services Consumed
Environmental Resources Used Through Pollution :
Electricity
Commution
Paper

Community :
Local Services Consumed

B Total

Net Benefit (A - B)

Format—2

. . . . . Company

Social Impact Statement For the Year Ended December, 31, 19x1

Social Benefits
Products and services provided
Payment to other elements of society
Employment provided (Salaries and wages)
Payments for goods and other services
Taxes paid
Contributions
Dividends and interest paid
Loans and other payments

Additional direct employee benefits
Staff, equipment, and facility services donated
Environmental improvements
Other benefits

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Total Social Benefits

Social Costs
- Goods and materials acquired
- Buildings and equipment purchased
- Labour and services used
- Discrimination
- In-hiring (external)
- In-placement and promotion

Work-related injuries and illness
Public services and facilities used
Other resources used
Environmental damage
- Terrain damage
- Air pollution
- Water pollution
- Noise pollution
- Solid waste
- Visual and aesthetic pollution
- Other environmental damage

Payments from other elements of society
- Payments for goods and services provided
- Additional capital investment
- Loans
- Other payments received

Other Costs
- Total Social Costs

Social Surplus (Deficit) for the Year
Accumulated Surplus (Deficit) December 31, 19x0

Accumulated Surplus (Deficit) December 31, 19x1

Standard Footnotes

1. Significant indirect effects associated with inputs.
2. Significant indirect effects associated with outputs.
3. Bases for measurements and estimates.
4. Progress in areas of current societal concern (such as environmental protection outlays and activities, employment and promotion of minorities and women, and energy conservation efforts).

Conclusion

The objectives of corporate social accounting—to identify and measure periodic net social contribution, to help determine whether firm practices are consistent with social values priorities, and to make available relevant information—provides a strong theoretical framework for the development of performance standards, measurement techniques and reporting requirements. Performance standards should refer to the various user groups — shareholders, employees,

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customers and the general public. Social data should be presented in both quantitative (financial) and qualitative (non-financial) terms. Due to paucity of proper measurement techniques, social benefits and costs cannot be quantified. Professional bodies and academic institutions should come forward for further research work in this area to develop measurement techniques for reporting costs and benefits of corporate social activities in quantitative terms. Legal provisions should be incorporated in the Companies Act regarding disclosure of social information, pollution control and environmental and ecological protection. Accounting standards have an important role to play in developing accounting, reporting and measurement techniques in India. So, accounting standards should be issued through Accounting Standards Board by the Institute of Chartered Accountants of India. It is necessary to ensure that reporting does not suffer from a highly restricted choice of relevant effects and a tendency to concentrate on items which have monetary value and on which price tags can be put. Of course, the assessment of future gains and losses will always remain subject to uncertainty.

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Human Resource Accounting in a Non-profit making Organisation

S. Sikidar *
*P.L. Hazarika***

Introduction

The accounting for human resource has assumed significance for decision making purposes both at the national level as well as at the enterprise level.The same is equally relevant for business enterprises and non-business enterprises alike.

The accounting for human resource has been influenced by the considerations of maintenance of financial capital concept alongwith the maintenance of physical capital concept.

Methodology : The authors, in this paper, attempt to evaluate the costs and benefits components of a section of employees of executive cadre of Gauhati University which is a non-profit making organization.The basic assumptions made in developing the model, evaluating the employees' inventory and outcome of analysis has been revealed in the subsequent paragraphs.We have developed a suitable model under certain assumptions relevant for the proposed research work.

Definition of Human Resource Accounting (HRA)

The American Accounting Association (AAA) defined HRA as "the process of identifying and measuring data about human resources and communicating this information to interested parties".Woodruff Jr (1973) defined HRA as "the identification, accumulation and dissemination of information about human resource in dollar terms".The concept covers human resource development (HRD), human resource accounting (HRA), and human resource management (HRM), and is popularly termed as 'humanomics' by Eugen Loebl.Eric Flamholtz defined HRA as "accounting for people as organisational resources.It is the measurement of the cost and value of people to organisations". P. Chattopadhyay (1989) expressed the opinion that the human resource study can encompass three views of HRD, HRA and HRM together for total human resource development.

Review of Literature

In measuring the value of human resources in any enterprise, there are two basic approaches namely, (a) human resource cost accounting (HRCA) and (b) human resource value accounting (HRVA).HRCA was advocated by William C. Pyle (1970) under which expenses incurred in training, recruitment, advertisement, acquisition of human resources are treated as an investment i.e. an asset.HRVA, on the other hand, is based upon the economic value of

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human resources to the entity.Human resources may again be evaluated using three parameters namely, (a) historical cost, (b) replacement cost, or (c) present value.Historical cost principle suggests the assignment of unexpired portion of recruitment, training, familiarisation and development expenses to the human resource of an enterprise.Replacement cost entails the estimation of the present cost of replacing the existing personnel under existing organisational conditions.The present value of the human asset is the discounted value of the estimated future net earnings of the enterprise contributed by its personnel.

In analysing the economic value and productivity of human asset and also in conceding the difficulty in measuring human investments, five major activities have been identified which improve human capabilities namely : health facilities and services, training on the job, formal education, adult education, and migration of individuals and families.These surely influence the level of personal earnings.

Criticalities of Measurement

A question that arises with regard to human resource in an entity is whether it is an asset or a bunch of expenses.The Committee on Human Resource Accounting (HRA) of the American Accounting Association (AAA) (1973) observed that 'the accepted practice of regarding all expenditures on human capital formation as an immediate charge against income is inconsistent with the treatment accorded to comparable outlay in physical capital'. Human resource to be classified as asset (Kolay, 1991) must fulfil certain criteria of conventional assets like - (a) it should possess future service potential, (b) its value should be measurable, (c) it should be acquired through a transaction, (d) it should be owned by an organisation.In course of measurement it is found that incomes are understated in periods of asset building and overstated in periods of liquidation of human resources.Significant departure from traditional measuring technique has been observed in that while a machine works independently, an individual human works in a group with personal traits, attributes, attitudes and behaviour.According to Baker (1974), the level of an individual's achievement can be measured by an interaction in the group in which he works.Similar point was emphasised by Flamholtz (1979), Lev and Schwartz (1971), Jaggi, and Lau (1974).The American Accounting Association (AAA) endorsed the view that human resources in an enterprise may be treated as an asset as they entail an element of future usefulness.Alternatively, Watson David (1978) has created a demarcation that expenditures on human resources pertaining to future benefits may be treated as assets and expenditures pertaining to current benefits as expense.Where the employees are permanently associated with an entity they can constructively be regarded as owned by it.And in course of operation when the employees are replaced it does not matter whether they contain the same person or a rapidly changing group, say Lev and Schwartz (1971).By and large, it thus appears that human resource is a living asset to an entity.'The measurement problem remains HRA's Achille's Heel today as in 1922' (Caplan and Landekich 1974).

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Constraints of Measurement

Measurement of human resources as assets entails several constraints as discussed below :

(a) Measuring and computing the incremental impact of services.

(b) Measuring and computing the present value of future earnings against expected future services.

(c) Conflict arising from valuation of investment in human resource from expenditure point of view or from service point of view of 'humanomics'.

(d) Historical cost approach versus replacement cost approach for measuring human resource asset.

(e) Selection of appropriate discount rate to account for the inflationary impact on the future earnings of the employees. There are variations in choosing such rate, e.g. ONGC and BHEL apply 12% discount rate, SAIL applies 14% discount rate.

Model for Measuring Service Cost : Its Application in Service Entity

Amongst the various models developed so far, we are influenced by the one developed by Dinesh Gupta (1990). Human resource in a profit making entity can be measured by turnover per employee, value added per employee, social overheads per employee, ratio of turnover to human resource, value added to human resources, and human resources to total resources. It poses severe constraint in establishing suitable quantifiable measures for service sector enterprises like university. Here human resource can be measured in terms of the value of its productive services for which rent is paid to the individual in the form of salary. The entity may have pride of holding and maintaining a valuable human asset without passing any accounting entry. The enterprise thus possesses an *emotional value* of its pride human asset with productive skill, efficiency, knowledge, aptitude and adaptability. The value of human asset to a service entity may be established with the help of stochastic process. Under this process, value is ascertained in relation to the movememt of employees from one position to the other over a period of time, and also by the criteria of employees' contribution to the organisation. In a service entity like university, the number of graduates and post-graduates, both, under private and regular category, has been increasing over the years, leading to corresponding rise in income of the university resulting from admission fee, tuition fee, etc.. But on the contrary, the increase in the number of employees in teaching department as well as in non-teaching departments is not significant. Thus it is obvious that additional labour and effort put in by the existing human resource can serve the rising number of degree-holders, can fetch higher flow of earnings to the university but cannot be brought within the parameter of accounting entry. Notwithstanding this limitation, we tried to establish the model for valuation. Dinesh Gupta (1991) based the valuation process on the following assumptions : (a) total number of posts in each grade remains constant; (b) employees are promoted only when there is a vacancy in the higher grade

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and vacancies arise only on promotion and retirement; (c) all employees in a particular grade have equal preference for promotion; (d) discount factor is 12%; (e) there is no fresh induction at any level; (f) there is no resignation of or superseding of an employee by another.

The following is the model used by Gupta :

$$\text{Present value} = \frac{P \times 12 \times N \times E \times I}{F}$$

where, P x 12 = Annual salary; N = Number of employees in the grade; E = Efficiency factor; I = Increment factor; F = Present value factor.

We present the following model in obtaining the present value of costs involved in human resources in service organization on account of salaries to be paid to them for services rendered :

$$P.V. = \frac{B[100 + \mu + \lambda_1 + \lambda_2 j]\ \% \times 12 \times N,}{(1 + 1/2)^{2n}} \qquad j = 1,2,3$$

where P.V. = Present value,

B = Basic Pay,

μ = (constant) = House rent and other allowances (exclusive of D.A.) as percentage of basic pay,

λ_1 = D.A. drawn at the beginning of the period under consideration,

λ_2 = (= constant) = Rate of increase of D.A. as percentage of basic pay,

N = Number of persons placed in a particular pay scale,

i = Discounting rate per unit,

j = jth year,

n = Number of years from the beginning of the period upto the mid-day (1st July) of the year.

The inherent assumptions of this model are :

(i) The basic pay for any employee during the period under consideration is equal to the average of the initial basic and the final basic pay in the existing pay scale and as such the increment factor does not appear explicitly in the model.

(ii) The total amount due to an employee on account of his service during a year is received by him on the mid-day of the year, i.e., 1st July. This assumption makes computation easier and mathematically the error committed on account of this assumption is nil.

(iii) D.A. increases at a constant rate during a year.

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(iv) House rent and other allowances are given at a constant rate throughout the period under consideration.

Additional assumptions pertaining to the period under consideration are the following :

(a) There is no revision of pay-scale;
(b) There is no new encumbent;
(c) No employee dies or retires and nobody resigns;
(d) Nobody is upgraded to a higher pay scale.

We use our model for computing the present value of future earnings of the employees in officers' grade of the Gauhati University Establishment on account of their services to be given to the establishment during the impending five years commencing from 1st January, 1994.We make a rough estimate for μ as 10% of basic pay on the assumption that 50% of the officers live in quarters who do not enjoy house rent and since the D.A. drawn at present is 37% of basic pay, so $\lambda_1 = 37\%$.The value of λ_2 is taken as 7.5% which is based on the assumption that D.A. is declared twice (on first January and first July) at the rate of 5% during a year.Thus, while in the first half of the year D.A. increased by 5% , in the second half it increased by 10%, the average being 7.5% throughout the year.We take discount rate as 12% so that $i = 0.12$.

Data Source and Result

For computing the desired present value we use information regarding pay scale of various categories of officers embodied in the Gauhati University's 'Financial Estimates for the year 1993-94'.We find there that the officers of Gauhati University are placed in eight different pay scales.We calculate the present value of future earnings of the officers pertaining to each pay scale for the coming five years commencing from January 1, 1994.When the present values of future earnings of all the existing sixty four officers placed in eight different pay scales are added up, we get the following sum :

P.V. = Rs. 1,93,68,113.00

The present value of future earnings of the employees in officers' grade has been computed on the basis of historical cost obtained from the pay scale framed by the University for this grade of employees.The AAA, Committee (A Statement of Basic Accounting Theory, 1966, p. 35) says that, 'costs should be capitalised when they were incurred in order to yield future benefits and when such benefits can be measured'.

Calculation of Benefits Accruing from Employees in an Educational Organisation

The computation of benefits in monetary terms derived from human resources in a service organisation, particularly in an educational establishment, is not an easy task.The university produces a number of post-graduates in different disciplines every year.However, the question of value addition to a post-graduate student in terms of money poses a serious problem and it needs both intensive and extensive research work on collective basis to deal with

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such a problem.However, a university can earn money from its own assets created by the employees of the establishment whose present value can be determined by choosing an appropriate annuity formula.A university can take various measures to mobilise resources for its requirement.The Chairman of the University Grants Commission while inaugurating the newly constructed Commerce Building of Gauhati University a few months back, hinted that the UGC would go on contracting its financial assistance to the universities and the latter would have to generate income for their functioning.He mentioned for example, that universities can generate income by giving training to bank employees, introducing some short-term courses for employees of other organization, etc.The present value of such anticipated earnings can be easily determined.Admission fees and tuition fees collected from students, examination fees for conducting various examinations by the university are included in university's income.The university also derives income by way of regular budgetary support from the state government, concurrent recurring grant from the state government, unilateral grant from the UGC under research heads, under development heads, from ICSSR, CSIR, IIAR and similar other agencies against specific research projects.However, the generation of income in most cases is the outcome of the collective services of all the employees of the university.So if we consider only a particular section of employees then we cannot determine what percentage of total income will be attributable to them.

Epilogue

The dimension of HRA and its need has been made even more significant by the Human Development Index (HDI) rank of India brought out by the Human Development Report 1993 of the UNDP. The HDI Index for India was 94th rank in the first HDR of 1990, 121st rank in 1992 and 134th rank in 1993. However, the declining trend of HDI index constructed annually since 1990 attempts to indicate but not measure the status of human development with only three of many possible dimensions of human development : health, education and income.This trend may be altered if we can supplement this exercise by adding more dimensions which may be applied not only as an indicator but by its true measure.The HDI rank index may be altered by applying the measuring technique of HRA in its proper perspective; construction of index is easier than measuring the value of HRA.

The business enterprises may fulfil their social obligations if they can systematically identify, define, measure and financially quantify the behavioural and performance outcomes of employees.It involves assigning a value of employees, to assessing the economic consequences of their behaviour.The total expenditure in human asset formation may be grouped into (a) human resoures profile (b) employees compensation, (c) training and development, and (d) productivity. However, HRA can be measured in aggregate and not on an individual basis.Executive and non-executive manpower may be evaluated separately.The cost incurred in respect of recruitment, hiring, selection, interview, development and training of the employees may be recorded separately

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and capitalized temporarily.The total capitalized cost may be amortized over the expected average service period of the employees in the organization.

When there is permanent exit of an employee on account of death, retirement, resignation etc., the balance outstanding on the capitalized account for that year attributable to that employee may be amortized or set off against the income in the year in which the employee leaves the organization.

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Accounting for Natural Resource Depletion and Environmental Degradation

*Asit Kumar Sengupta**

The Principal Issues

1. At the very outset it should be borne in mind that the subject under discussion is entirely an account of a massive estimational task. The concept of debit and credit has nothing to do with this discourse. This will only be applied when a formal need is felt as to how any kind of changes or accretion estimated with thanks to "depletion accounting" is to be recorded in national income data in macro terms, or in case of any incorporation of the related benefits and costs in micro-level statements. The term "Depletion Accounting" has been coined in the sense of highlighting the principles and techniques of accounting for the depletion of natural resources and environmental quality.

2. The need for the development of so-called depletion accounting is appreciated when the science of scarce resources is considered important, particularly in view of making resources increasingly productive and ensuring inter-generational equity and justice at times of any current economic activities. Thus, the twin objective of productivity and conservation of natural resources necessitates the development of tools that help understand the entirety of the issues involved in generation, consumption and depletion of resources that invariably includes the physical and cultural environment and the maintenance of its quality. Accounting techniques in this regard are nothing but scientific methods for the estimation of the concerned variables.

3. The technique of depletion accounting varies according to the nature of resources in terms of flows and serviceability. In some areas use rate may exceed the rate of natural replenishment, while the process of recycling may repair the loss of resources in other areas. Estimation of aggregate production as well as the quantity of the deployed resources being recycled is one of the basic accounting tasks. On the other hand, the growth rate of annual demand for some kinds of natural resources may pose a formidable problem of complete exhaustion within a short period of time that can never be apparently visualised. The static idea of a particular resource, based on available stock and annual demand, does not necessarily reveal the actual number of years for which the supply is ensured. A dynamic index is imperative in consideration of the exponential growth in use of natural resources whereby the number of years to limit the supply can be feasibly estimated.

4. There are many points to ponder over the development of techniques of depletion accounting. One is the variability in resource stocks estimated on the basis of a variety of perceptions, costing techniques and technological capability, and hence, sheer current commercial considerations cannot be acceptable as a unique design of estimates. It may be useful to have some idea

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of the gaps between proven reserves and total reserves of resource units. But seemingly large extensions of resource stocks make surprisingly little difference to resource longevity when viewed against the inexorable progress of exponential growth in demand for them. Again, a Malthusian concept has been applied in so far as resources are considered to be homogenous. This simplified version is modified by the Ricardian view that since resources are highly variable in quality, type and location and hence, the depletion is differentially accounted for because of a general principle in the case of most minerals that as ore grade declines arithmetically, resources increase geometrically. Depletion accounting must also be designed in view of the alleviating factors and particularly a possible increase in resource productivity stemming from technical progress. In this way, formal accounting for the net depletion may give rise to a positive result of the remaining balance of any resource stock even if the consumption grows exponential. But the formulation of a composite index of productivity may speak in different terms about the possible results of an indefinite increase in resource productivity that may turn out to be an absolutely abstract idea.

5. The extent of the depletion of natural resources can be understood by constructing economic models that speak about variability or otherwise in terms of the magnitude of resource depletion. Viewed with respect to real world data there are various studies that tested the implications of resource scarcity (depletion) on the extraction costs and prices of resource products over a long period, and the results are startling. Evidences show that there are increasing and not decreasing returns of resource generation and utilization, and as such, it has been observed that natural resources will not become increasingly scarce and retard growth in future.

6. Estimates of ecological crisis may be considered as the accounting for the decline of environmental quality. In the past the environment was pure, undisturbed, and quite hospitable for mankind. But mankind has used the natural environment for profit and comfort and caused great damage for future survival. Air and water, for example, have been fouled, landscapes transformed, fish and birds poisoned, and croplands have been allowed to become deserts. These are the direct consequences of an unduly prolonged state of war with nature. Man-made alterations of the environment are probably having unfavourable effects in the opinion of some people, and favourable effects in the opinion of others. The determination of the dimension of the favourable versus unfavourable effects — or of benefits versus costs — has been difficult just because it has been ultimately subjective, even though objective data may get involved in such determination.

7. The crisis of environmental quality has come primarily from pollution. Pollutants are virtually the creators of pollution. Accounting for environmental quality involves the measurement of pollutants and the effects of pollutants on human activity in terms of monetary benefits and costs. The study of pollution is truly an interdisciplinary one including as it does the three Ps - pollutants, processes and the people. Scientific enquiry into the prevalence of a large

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number of pollutants, arising out of economic activities, in different parts of the environment may help in accounting for the economic and commercial consequences. Sometimes, the estimation of the environmental quality, or for that matter, the pollution effects on health, on economic activities and on the stock of different resources is only a guesswork. Perfect statistical techniques are yet to develop. This has been more complicated by the persistence of pollutants remaining dangerous almost indefinitely. The task of the accountants is to become conversant with the direct and subsidiary areas of pollution generation and to try to estimate the effects in some economic terms, although such accounting may have to rely sometimes on vague dimensional indicators as, for instance, in environmental impact assessment statements, prepared in India and abroad. It should be borne in mind that the individual effects may not add up to the aggregate consequences in so far as synergism is concerned. In other words, the estimation of individual pollution effects in isolation is not proper. The combined effects of two or more pollutants are more severe than, or even qualitatively different from, individual effects. The reverse is sometimes true in the sense that the combined effects of two or more pollutants are less rather than more severe, popularly known as antagonism. In this way, economic costs involved in pollution (air, water,solid waste, etc.) are very difficult to be accounted for. The development of techniques for such an accounting task should be a constant process. R & D expenditures for the innovation of pollution control technology is also to be taken into account. The provision of public good, and for that matter, the introduction of a novel tax system are some of the important performances of the public household that are exponentially related to the problem of accounting for environmental quality and its management.

8. There are special problems of the depletion of natural resources and environmental quality in less developed countries. Inadequacy of natural resources here can be accounted for mostly in terms of ineffective use of them. So, depletion accounting involves the identification of the ineffective method of utilization of natural resources, i. e. the task of locating the specific areas where such utilisation takes palce. In such countries a basic disharmony exists between man and his environment, and it is perpetuated by a tradition-bound and highly inequitable social and institutional framework. This is called the environment of poverty. Accountants of LDCs cannot afford to ignore such real world systems where poor masses are forced to over-exploit the fragile eco-systems and the socially advanced classes relish to reap the benefits rather disproportionately.

The Technical Issues

1. It is important to translate some technological variables into easily manageable economic variables. For natural resources, geological parameters signify the degree of availability and serviceability of different metallic and non-metallic resources. Accountants have reasons to convert those variables into accounting figures in order to moderate the revenue accounts and statements of affairs for a true and fair picture. For example, if a new technological

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device increases the value and capacity of an input or natural resource, accountants should feel it necessary to modify the historical cost method of valuation, and redesign the accounting figures into appropriate magnitude. This is likely to be a real issue in view of the revaluation of the firm's overall position and is technically comparable to the accounting for price level change. On the other hand, accountants may have very little scope of isolating the environmental effects of the enterprise operations and leave them to the care of scientific personnel. But it will be worthwhile for accountants to translate them into monetary dimensions. For example, pollutants coming out of the enterprise operations, may, no doubt, affect the entire region; but it is not impossible to estimate the direct effects of such pollutants on the workforce as well as material wealth of the enterprise in monetary terms. A careful enquiry into the morale of workers, medical leave granted, (or absence on medical ground) employee compensation expenditure, need for depreciation, product quality—all in inter-periodic comparative scales—may reveal data that are likely to express the effects of environment in which the employees are to work and the assets are put into operation. Financial and cost accounting methods of imputing the positive and negative values towards the asset components and the value of human resources may be used. Development of such tools for accounting purposes of natural resource depletion and fall in environmental quality is of utmost importance for the proper revelation of enterprise performance and position.

2. Flows and serviceability of natural resources should be observed carefully in an effort to adopt varied techniques of accounting. Issues concerning this area for example, are as follows, for renewables:

i) Output > the rate of natural replenishment plus artificial replacement
ii) Output < the rate of natural replenishment plus artificial replenishment.
iii) Revaluation of stock resources based on possible increase in serviceability due to innovative technology.

3. The rate of annual demand increase for some resources poses threats of complete exhaustion. But the question is to know the number of years to limit the supply of those resources. This is, in the main, related to the case of non-renewable resources. Two indices are applied, namely,

(i) the static index, and (ii) the dynamic index.

Following estimates will be important :

Estimates of Static and Dynamic Indices

Stock/Supply (Say, 10^n Tons)	Annual Demand	Growth Rate of Demand	Static Index	Dynamic Index
R_i	D_i	r	R_i / D_i	$\frac{\log R_i - \log D_i}{\log(1+r)}$
5,000	2.5	4.5	2000	80

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Thus, resource life is dramatically shortened by the exponential growth in use of resources. An easy method of computing the successive consumption doubling time is 70 ÷ r (r being the rate of growth of consumption).

The above case is an aspect of macro-accounting. At enterprise level the problem of depletion is generally uncared for, since the impact of a single individual enterprise on total resource stock is apparently insignificant.

4. Recycling involves depletion of other resources. If the unit cost of virgin resources is less than that of recycled resources, recycling will involve additional quantity of resource consumption. Recycling is thus not always resource-augmenting. Accountants should be careful of such areas where they are likely to be carried away by any kind of seemingly acceptable innovation. On the other hand, resource extraction also involves use of resource stock. For example, fuel for tractors, fishing boats, vessels, inorganic fertilizers, biocides etc. incurs depletion in the cost of other types. Again, vast coal fields and quarries undermine landscape. One is required to locate and estimate these areas with conventional accounting scales.

5. There are many other points to consider on the development of techniques of depletion accounting. A variety of concepts, costing techniques and technological possibilities are there, and hence, the variability in resource stocks. Importantly, the nature of depletion as well as the level of depletion varies. Only current commercial considerations cannot be acceptable as a unique design of estimates. There are obvious gaps between proven reserves and total reserves. Estimates are subject to uncertainty. Reserves may be inferred for unexplored areas for previous finds from 'similar' explored areas, although they are subject to uncertainty. National income accountants shall translate in monetary terms the possible natural resource stocks based on increasingly known geological structure, though each addition to resources lasts less long as usage increases.

6. One of the most important factors in depletion accounting is the increase in resource productivity. The conventional estimate of productivity is not worth its while. Technological prowess increases resource productivity as well as the degree of utility of resources with finite stocks. It can be claimed that even the net amount of depletion may not be negative although the consumption of resources is at an exponential rate. Suppose that the use of resources increases by y percent per annum, while the productivity thereof increases by x percent per annum, and $x > y$. Then the depletion of resources "decreases" by, say, z percent per annum, $\{ z = (x - y)\}$.

Now suppose r_o is equal to depletion in the first period and the cumulative depletion is given by : $r_o (1 + z + z^2 + ...)$. The finite sum of such a geometric progression is equal to $\frac{1}{(1 - z)}\ r_o$. If the initial stock of resources exceeds this amount, resources are never exhausted. This is by and large an abstract idea. But one should not ignore the strength of technology that makes the exhaustion of resources much more delayed. Accountants should be aware of the components involved in analysing the varied functionality of different resources.

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7. Alteration of the environment may have some favourable and unfavourable effects, otherwise known as benefits and costs, respectively. It is difficult to compute them in some precise monetary terms. The first difficulty is to isolate the singular or the combined effects of pollutants in the stock of wealth as well as the ecosystem. Some amount of subjective dimensions may help us understand the extent of pollution effects. Precision of monetary estimation of these effects is next to impossible.

8. Environmental quality accounting is the recording of ecological crisis in economic terms. Determination of the extent of favourable vs. unfavourable effects (benefits vs. costs) is difficult. Although objective data are analysed, subjective dimensions may be acceptable. At first, assistance from the technocrats will be warranted for the scientific enquiry into the prevalence of a large number of pollutants arising out of economic activities. Let us estimate the loss accrued to the creator of pollution in the form of health hazards in the immediate vicinity of the enterprise, fall in productivity, loss of wealth due to non-deployment of proper substitution of process or factors, new types of taxes to be borne, additional costs involved in complying with the official directives disturbing the status-quo position of the enterprise. In this connection one has to abandon the idea of considering the natural environment as "free good".

9. Economic units other than the creator of pollution bear the brunt of the costs—a phenomenon called externality. This denotes the inefficiencies that arise "when some of the benefits or costs of an action are external to the decision maker's calculus". In this way some economic agents are better-off and others are worse-off. In such cases, accounting measurement is inevitable. There may be a variety of methods or procedures, but importantly, one is to know the degree of being better-off/worse-off in money terms. For example, income may increase at present or in future. Let us estimate the amount of possible expenditure that would have been defrayed to make the operations pollution-free. It is not difficult to account for the measures to make the activities pollution-free. Large amount of investment would have been required to treat and control the dusts, fumes, effluents, etc. The firm may sometimes only be required to bear the cost of taxation which is in no way, comparable to the cost society at large is required to bear. Thus, cost per unit relative to profit may increase or decrease. An indirect way of understanding the possible effects of waste disposals, had they been borne by the creator himself, is to somehow estimate the shift in the cost structure. It is likely to be reflected in the supply curve that eventually goes to cut back the volume of production along with the increase in unit price. Recent publications in environmental economics demonstrate them excellently in diagrams.

10. It is not proper to measure individually the effects of different pollutants.The combined effects of two or more pollutants turn out to be more severe than those in individual cases. Such a synergistic effect is difficult to isolate and appropriate prediction is not possible. The task of the accountants in respect of deriving the unit costs of pollution and apportioning them to

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different stages of enterprise operations are likely to be immensely difficult. Sometimes vague dimensional estimates based on guesswork may be an answer to this problem. For example, since a number of persons are likely to be affected physically as a result of pollution it will be the prerogative of the accountants to estimate the extent of attack of diseases, the 'possible' medical expenditures to be borne, the rate of increase of individual and collective medical and public health programmes to be adopted, and thereafter to ascribe monetary values to each one of them. In macro-level estimation it will be worthwhile to identify different phases of health hazards in terms of local, regional and national problems. For example, mention may be made in respect of the increase in the number of hospital patients, expenditures made in different hospitals and healing centres as well as the notional expenditures had all the medicare-seeking people been offered appropriate treatment. Sometimes the effect of persistent pollutants which is inter-temporally and interspatially far-reaching may go to magnify the aggregate expenditure based on the above observation, and hence, some amount of guesswork will help estimating the period-specific consequences of pollution in monetary terms. On the other hand, the increasing share of medical and public health service expenditures in the aggregate volume of consumption of the people in any period is also an indirect indicator to the formation of investment affecting thereby the generation of income and effective demand.

11. The effects on agriculture and horticulture generally originate from severe photochemical smog, sulphur-oxide, and hydrogen fluoride. They produce complex changes in the plant ecosystem in both surface and waterbodies. At least inter-temporal comparison of cost, and production level, relative to the quality and quantity of input in different sectors of agricultural activities may, to some extent, illuminate the effects of environmental quality depletion.

12. When pollutants are responsible for the deterioration of materials and buildings (as in acid rain), repairs and maintenance expenditures as well as replacement costs may increase. At least five-yearly comparative data in this regard is likely to reveal an inordinate rise in expenditure. Such an indirect indicator is useful.

13. Costs in investment and operation for adequate control of pollution can be estimated rather partially. Examples are the replacement and protection of precision instruments, maintenance of cleanliness in production of food and beverages, cost of fuels wasted in incomplete combustion etc. Financial allocation for the same by the public household is an important case in point. These costs have their role to play in national income estimates.

14. Research and development (R&D) expenditures for the innovation of pollution control technology is also to be taken into account. Prohibition of activities of the pollutant-generating firms (above a certain level) is likely to be a drag on income generation and aggregate employment of resources.

15. The cost of water pollution is difficult to account for. There are some aspects the economic dimension of which is sometimes improbable. For

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example, it is difficult to measure the cost of not being able to swim in the water streams, or not being able to enjoy fishing or even the aesthetic cost of a polluted lake or so. Conversion of all of them in monetary terms is not always valid. However, a pertinent question may be raised as to the social burden of the supply of drinking water. Generally, at a very modest price, the drinking water is available, but the cost of supply is not low. On the other hand, one is to consider the cost of water-borne diseases spreading epidemics, and hence, the importance of accounting for public health costs. There are a large number of water-borne pollutants, namely, pathogens like bacteria and fungi, sediments, solid waste, excess heat, brine (a by-product of desalination plant), industrial toxins, petroleum, nutrients, radioactive wastes, acids, bases, oxygen consuming nutrients etc. These pollutants have increased costs of marine quality protection. To isolate these costs it is worthwhile to segregate them into three major types, namely, pathogenic, aesthetic and ecomorphic causing fatal diseases, visual disamenities and change in the physical features of the environment, respectively. But the delineation is not all that is required in accounting. A synergy is visible everywhere. Simple measurement of pollutants apart, it is worthwhile to account for different effects thereof. However, salinity, hardness, dredging, corrosion, lowering of fish-catch are some of the sources of increase in costs, They are reflected in unit prices or service charges that may be identified as direct consequences of pollution from economic activities.

16. Difficulty also lies in finding out the social cost of solid wastes, involving, at first, the aesthetic displeasure from disposal methods. Any programme for anti-litter and high-way beautification gives rise to cost augmenting operations, the accounting for which may not always raise any problem. But the multiplier effect of such pollution can hardly be isolated from those of the air and water-borne pollutants. Costs incurred in maintenance of roadways, transport system, equipments repair and overhauling as well as installation and maintenance of dumping grounds are however, likely to be relatively easily indentifiable.

17. Accounting for a number of technical options to fight back any deliterious effect of pollution generating activities is also important. Thus, cost increases may be somehow arrested, but additional costs involved in the installations of cost effective technological substitutes raise problems of accounting devices. For example, changes in quality and type of input and output, modifications of the processes used as well as introduction of by-products recovery, and changes in the fuel preparation, fuel substitution as well as redesigning burners—all these give rise to the need for proper allocation of expenses and estimation of additional income.

18. There may be some accounting problems in respect of the enterprise or economic unit-specific allocation and apportionment of the cost of pollution. Such an attempt may be abandoned, and instead, region-wise estimation of the pollution effects in monetary terms may be made at first, and then a formal unit-wise incidence of cost may be located depending on a carefully designed

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allocator for this purpose.

19. Special accounting problem for the less developed countries (as indicated in para 8 of the Principal issues) relates to the massive estimational task for different purposes, namely (i) lowering of income generation and capital formation for not having exploited the potential sectors of natural resources in a scientific manner (ii) diminution in the value of natural wealth in the form of soil erosion, deforestation etc. resulting from the ineffective use of natural resources by the poverty-stricken mass of people in a backward social setting, (iii) drainage of wealth due to the sub-optimal allocation of natural resources as an unfortunate consequence of the rigidity of the international economic order, etc.

20. The above paragraphs may be claimed to be the statement of (i) a modest attempt for the delineation of a modern problem societies are to face and (ii) a formal analysis of the issues in accounting scales. The technical issues as highlighted and the relevant methodology as developed in this paper may inspire any on-looker to the problem to extend the horizon and deepen the volume of such an analytical discourse.

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Section IV

Ethical Issues in Accounting

This section features two papers that seek to establish an ethical basis of accounting.

Accounting is concerned with decision making in multi-person situations where accountants have considerable leeway to use personal value judgements to subserve narrow self-interests, sometimes even to the detriment of the interests of intended users of accounting information. This leads inevitably to a conflict of interests which may be alleviated somewhat by the implementation of meticulously framed rules, codes of conduct and professional ethics. In spite of well-documented regulations and procedures, ethical dilemmas would still prominently confront accountants. Bhabatosh Banerjee in his article, ***Ethics in Accounting in India : An Emphasis on Education and Training,*** *tries to find a way to equip accountants in solving these dilemmas. In his view, our foremost responsibility is to increase the accountants' s ethical awareness by incorporating ethical theory and discourse into academic and professional accounting education curricula. In particular, he clarifies the meaning of the term 'ethics' in the context of accounting and makes an enquiry into the possibilities of teaching ethical behaviour by way of classroom teaching and professional training. He also outlines a framework for teaching ethics in line with the suggested guidelines of the International Federation of Accountants. The role of accounting educators and the responsibility of the corporate sector in teaching ethics is specified. A few case studies on ethical behaviour are summarised. The author concludes that in the wake of liberalisation of the Indian economy and other consequent changes, the ethical foundations of accounting educators, researchers and students will become more important in days to come.*

An increase in ethical awareness and the recognition of third party rights in evaluating corporate performance is a step in the right direction towards humanizing accounting. Once the accountant is accustomed to do this, his responsibilities should extend towards upholding, preserving and protecting the biotic rights of all to live and blossom. In other words, the progress should be increasingly towards embracing a holistic naturalist ethics. The concluding paper, ***Green Reporting : Honing the Ethical Edge of 'Black and White' Accounting*** *by Kanika Mookerjee, addresses itself to this task. It commences with a defense of an ecological, non-linear, holistic world-view as a more appropriate methodological framework than the extant view, for grappling with questions regarding the relationship between man and nature.*

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It is posited that scientific and technological developments based on reductionist thinking have catalysed serious environmental disasters, jeopardised life-support systems and resulted in gross disparties between rich and poor. Consequently, the pursuit of economic development has, thus far, remained merely a pipedream. In these circumstances, it has become extremely urgent to replace our adversarial connotation of economic development with a humane and holistic philosophy of sustainable development which should progressively be elevated to the rank of a global ethic and allowed to pervade the mainstream of business life.

Green reporting systems can be instrumental in the sustainable measurement of corporate performance for promoting the ethics of sustainable development. Although the inchoate 'state of the art' of such systems reflects a technocentrist response to environmental responsibility, nevertheless, it signals the accountants' way of jumping on the 'green' bandwagon.

In designing green reporting systems, accountants face a serious challenge of having to break away from their tradition of dealing with objectively verifiable financial data, single time period of analysis, historic performance measurement, and the economic entity as a focal point of financial reporting. Another pre-condition of sustainable measurement is an extension of the concept of capital maintenance to include 'critical' natural capital, sustainable natural capital and moral capital in addition to man-made capital.

Regarding the future of green reporting, we should work more towards advocating ecocentrism that transcends cost-benefit based utilitarianism. Children, women, and a new breed of 'environmental integrators' should be empowered to play a pivotal role in environmental decision-making at all levels. In the sphere of education and research, refinement of our suprarational intuitive faculty should be made a basic goal, so we may transform our limited linear vision to a global vision and our separative knowledge to a Knowledge by Identity.

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Ethics in Accounting in India : An Emphasis on Education and Training

Bhabatosh Banerjee *

Introduction

Accounting is concerned with measurement of economic activities of the firm and reporting thereof.In performing this task of measurement and reporting, accountants have to work in an environment governed by a complex set of rules, principles and practices.So, accountants have to face not only formal or legal rules of behaviour but also many ethical dilemmas (an illustrative list of ethical dilemmas is given in Appendix I).Accounting is acknowledged as an art practised by professionals.As such, it is perceived as being based, in fact, in truth and in realism.Accounting principles, rules and regulatory framework cannot be taken for granted.Each member of the profession has the responsibility to uphold the integrity of profession through their individual behaviour.Professional accountants, whether they are in practice, in industry, or commerce, in the public sector or in education, today have an increasing role in decision-making.They operate in a world of change in which corporate collapse, business impropriety, regulatory failure and environmental disaster are prevalent.In such an environment, there should be an awareness of the pressures of observing and upholding ethical standards which may fall on individuals involved in the decision making process.In short, such accountants should operate effectively and with integrity and discernment in an environment of change.Accordingly, ethics in accounting should be part and parcel of learning process through which one has to undergo for getting formal accounting education.In this paper, we, therefore, deal with teaching and training of ethics in accounting.In particular, we deal with the following issues :

Can ethical behaviour be taught in business schools or in professional institutions ?

What should be the framework for such education ?

Should ethical issues in accounting be also included in the training programmes of the business firms?

What should be the responsibility of corporate enterprises in this respect ?

The paper, however, starts with a discussion on the meaning of ethics in accounting.

Ethics in Accounting : Meaning

The dictionary meaning (Oxford) of the term "ethics" is a "set of principles or morals, moral principles or rules of conduct".It may be referred to moral judgements involved in making moral decisions about what is morally wrong and right or morally good and bad. So, viewed from the perspective of business education in ethics, the primary question is how to teach various

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aspects of *moral development* of future accountants.In other words, what higher education in accounting can do to aid in the moral development of individuals who would eventually take accounting as their profession.

What do we mean by "moral development"? The most widely known work in the area is that of Lawrence Kohlberg (1971) who identified *six progressive stages* of moral development.Though Kohlberg's work has been criticised on a number of counts (Gilligan, 1982), his theory of moral development can serve as a model for ethics education.According to Kohlberg, the *first motive* people have for doing right is fear of punishment/fear of authorities.People at this stage act ethically because they fear the consequences of unethical or illegal behaviour.But for such motive to be compelling, the unjust behaviour must be identified and punished.If there is no fear because of the laxity of the environment people will not be motivated to do the right thing or avoid doing wrongs. The *second motive* is self-gratification, one's desire to obtain benefits for oneself.People in this category are motivated to act ethically when they see that doing so will be more beneficial to them personally than not doing so.The *third motive* is role expectation or approval from others.People in this stage are motivated to act in ways that are expected of them by others.In business, this motive is invoked when people show "professionalism" in their activities or they "act in a professional manner".The *fourth motive* is adherence to moral codes, or codes of law and order.People in this stage recognise that certain laws, rules,by-laws and codes of conduct are necessary to assure organisational and social cohesion.The *fifth motive* is concern for others and for broader social welfare.People at this stage recognise that they have a "social responsibility" to act ethically and justly for the welfare of the society.The *sixth motive* identified by Kohlberg is the concern for moral principle.Individuals here are motivated to do what is right simply for the sake of doing what is right.Knowledge of underlying principles of philosophical and religious ethics is imperative for individuals at this stage.

What we have mentioned above is, as usual, an American phenomenon.In India there are no signs yet of such emphasis in the business world except a few works, e.g. Monappa (1977), Chakraborty (1992, 1994), Banerjee (1994).While dealing with different aspects of management by values,Chakraborty suggested *thirteen values* (pp. 19-20) rooted in the deep-structure of Indian culture and society.These are : the individual must be respected, cooperation and trust, jealousy is harmful for mental health, purification of mind, top quality product-service, work is worship, containment of greed, ethico-moral soundness, self-discipline and self-restraint, customer-satisfaction, creativity, the inspiration to give, and renunciation and detachment."Such then", remarks Chakraborty, "is a very compact profile of human values, anchored in the transcendent aspect of human existence, which Indian management should immediately begin to understand, explore and implement.Such implementation has, of course, to be conceived and executed with the 'first person, singular' as the focus, i.e. I- not you or they, or boss or subordinate or society and so on."

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Can We Teach Ethical Behaviour?

A person entering into the accounting profession has a special training to function.But integrity of character cannot substitute for that necessary training and preparation.By the same token, a person must be educated in the ethical dilemmas he or she is likely to encounter in order to function ethically in professional situations and technical training is no substitute for that education.It may be argued that a student in professional schools are in a very important formative period of ethical development, that formal schooling is a powerful catalyst to moral development and that even rather modest and low cost educational interventions can produce significant results.The belief that ethics instruction is necessary, as well as beneficial, in the college/ professional school experience has received increased attention from professional groups and in professional reports.

In the USA, for example, the Report of the National Commission on Fraudulent Financial Reporting (the Treadway Commission) argued that "the independent public accountant's responsibility and accountability to the public requires a much broader exposure to ethics.Business schools should include ethics discussions in every accounting course. ...Business and accounting curricula should emphasise ethical values by integrating their development with the acquisition of knowledge and skills to help prevent, detect and deter fraudulent financial reporting". The American Accounting Association Committee on the Future Structure, Content and Scope of Accounting Education notes that "professional accounting education ..... must instill the ethical standards and the commitment of a professional".

If we scan the syllabi of accounting education in reputed schools and two premier professional institutes in India, we find that we are yet to recognise the need for such formal education in our course curricula.Both the professional institutes have, of course, set "professional ethics" to be complied with by their members.So far as formal training of the accountants is concerned there is no provision for moral development in the course structure.This is not desirable.In the developed countries, such as in the USA, the teaching of ethics courses in business schools is on the increase.There is no doubt that business schools and/or professional institutes can contribute significantly towards moral development of students.It should consider more closely why people act in ways they consider ethical. Identifying the various motives people have for doing so can lead to an identification of *specific concepts and subjects* that need to be included in the curriculum.In presenting these concepts and subjects, educators can enhance the likelihood that what students learn in the classroom will positively influence their behaviour after they leave it.Earlier, we talked about "professionalism".One opportunity for invoking this concern in the business school curriculum is through the *values and value orientations* that business faculty themselves bring to the classroom.It is needless to mention that students learn a great deal more from the faculty than knowledge and information and that the attitudes and value orientations they bring to the classroom and to the subjects they teach are going to be absorbed to some

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extent by students.The third contribution that higher education can make to the moral development of students is to *provide a climate supportive of such development.*

An example on the point is establishment of a student-run honour system for the school. This system would signal to all — faculty and students — that standards of integrity and honour are in force in the learning environment.In the University of Virginia, U.S.A., there exists a student-run honour system.It rests on the premise that lying, cheating etc. are breaches of the spirit of honour and mutual trust and are not tolerated.In short, if we want to teach ethics, we should do so in a climate of honour and trust among the students and the educators.

The Framework of Ethics for Teaching

The teaching of ethics in accounting, as explained above, can help the student feel more confident later when confronting an ethical dilemma in practice.The goals of teaching ethics in general and accounting ethics in particular may be "stimulating the moral imagination", "recognizing ethics issues", "eliciting a sense of moral obligations", "developing analytical skills", "tolerating and reducing disagreement and ambiguity" (Belkaoui, 1992).

Teaching of ethics in accounting may be done in either an *integrative approach* or in a *pervasive approach*. While in the former, ethics will be included in all the accounting courses, in the latter, ethics will be taught in a single course.

The Education Committee of the International Federation of Accountants (IFAC) suggested guidelines in November 1991 for its member bodies to review their arrangements for the education of their members and future members in the area of professional ethics and their application.While suggesting the guidelines the Federation "recognises that ethical standards are time and context specific and hence the member bodies may adopt the guidance to their own needs and circumstances.The important recommendations regarding framework of teaching are as follows :

i) Ethics should be treated as an important topic in its own right within the educational framework.

ii) Ideally the presentation of the topic of professional ethics should be treated initially as a separate subject.As students progress, and gain a wider knowledge of other curriculum subjects, it will be appropriate to integrate treatments.

iii) The initial coverage might include :
   - The nature of ethics, differentiation between philosophical and professional approach,
   - Concepts of integrity, obligation, independence, public expectations,
   - Ethics and the professions : social responsibility,
   - Consequences of unethical behaviour — to the individual, to the profession and to society at large,

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* Ethics in business,
* Ethics and the accountant, ethical dilemmas and their avoidance.

The University Grants Commission or the Indian Commerce or Indian Accounting Association (IAA) may examine the above points before submitting their recommendations.

The Role of Accounting Educators

What should be the role of accounting educators in this respect ? Accounting educators will have to teach ethics in accounting.So the presumption may be that they would be guided by *explicit* or *implicit ethical codes*. In the U.S.A., the Committee on Academic Independence of AAA (1981) recommended that there is a need for an AAA code of ethics for academic accountants.It is argued (Loeb 1972) that a code of ethics for academic accountants may perform the following functions :

1. Giving accounting educators a recognised set of standards that can be employed when they encounter ethical dilemmas.
2. Providing a set of standards that society can call upon an accounting educator to meet.
3. Providing a set of standards that can be used in the training of accounting doctoral students.
4. Providing a set of standards that may raise the stature of education system and the profession.
5. Providing a set of satandards that could be used if disagreements arise between accounting academics and other individuals.

In India, the issue should be first debated at length in different forums and then code of ethics may be formulated.The IAA may be entrusted for formulating such code of ethics and the Association then may take up the issue with the U.G.C. for implementation.

Corporate Responsibility

Corporate sector is one of the bigest consumers of our products the majority of the commerce graduates and professional accountants are absorbed, in some form or the other, in this sector.We, therefore, highlight the role of this sector in ensuring upholding of better ethical values of its staff.Ethics education cannot be completed in business schools or professional institutions —an inevitable extension of the education system should include formal training in ethical dilemmas in corporate enterprises for a number of reasons.While accounting educators can help students evaluate their responses to case situations, classroom discussions alone can never prepare students to deal successfully with an ethical dilemma in the real-life situation.Secondly, until faced with having to make such a decision, students will not understand the importance of developing a personal code of ethics.Thirdly, the effect of ethical dilemmas on decision making is understood more clearly by managers than by many academics.The real-world experiences of managers can complement the ethics education students receive from academics.Lastly, learning in ethics must be a lifelong process. No matter how much business schools

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and professional institutions devote to moral instruction, most educaton in business ethics (as in all other aspects of business acumen) will occur in the organisations in which people spend major portion of their lives.So, we discuss in short the corporate responsibility in ethics education in the lines suggested below.

i) *Application in the work environment* : The period of practical experience and training should be structured to provide each member of the staff with an opportunity to observe the application of ethics in the work situation.

ii) *Establishment of corporate codes of conduct* : Companies should develop and implement their own codes of conduct.The "tone at the top" contributes significantly to the success of the system.A policy is implicit in behaviour.Therefore, far more important than written policies are the examples set by the behaviour of senior management.Corporate codes of conduct will provide all employees with a common foundation for use in administering the company's ethical policies.In order for code to promote and maintain an ethical climate, however, it must be implemented effectively, monitored continuously, reviewed periodically, and, if necessary, revised and enforced unequivocally. *Periodic audits* should be made to ascertain compliance with the company's objectives and correct any deviations from the code.

iii) *Continuing education programme* : Learning ethics should be a career-long process.In an environment of change, accountants should be aware of potential new ethical dimensions/conflicts in their work.This requires continuing education programme to be conducted by the professional bodies for the benefit of their members.Many companies have, today, continuing training programme or management development programme for their employees and managers.Incorporating ethics training into its continuing education programme is certainly another way a company can enhance its ethical climate.

Case Studies on Ethical Behaviour

Engle and Smith (1990) made a survey of ethical standards of accounting academics in the USA. This is related to the ethical propriety of faculty participation in a variety of questionable activities in the areas of research, travel, outside employment, relationships with publishers, and relationship with students (out of 29 specific activities selected for the study, an illustrative list is given in Appendix II) and warranted sanctions.

Questionnaire recipients were requested to express their attitudes about each of the 29 activities on a five-point scale ranging from "totally ethical — no sanctions are warranted" to "extremely unethical-involvement in the activity warrants dismissal".The questionnaires were mailed to 700 randomly selected faculty members from 366 collegiate institutions located in the USA.However, the usable response rate was 35% (245 respondents).

Faculty sentiment tends to indicate that involvement with the 29 activities studied should be avoided because they are at least moderately

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unethical.The most unethical activities include plagiarizing of research, falsifying documentation for research grants, falsifying research data, accepting a bribe from a publisher, accepting money, sex or gifts for grades, conducting university responsibilities under influence of drugs or alcohol and falsifying activity reports used in evaluation of faculty.Turning to current faculty involvement with the investigated activities, the data indicate that a minority of faculty are involved with most of the listed activities.Thus, a minority appears to be violating normative standards of ethical conduct, as prescribed by their peers (p.29).

Chakraborty (1992 pp. 94-95) successfully conducted, between 1983 and 1990, over a hundred in-house programmes, designed "management-by-values", grounded in the Indian ethos in many Indian companies.Almost 2,000 participants, ranging from the chief executive down to managers two or three levels below, received the message of management-by-values.According to him, "Indian organisaions, in general, demonstrate a pathetic lack of deep intellectual grasp and of resolute will.Many fume and fret, for somewhere in their bones they sense that things cannot or should not go on as they are.Yet they also reveal a fear, a hesitancy, almost a paralysing indecision, resembling that of a little boy at the edge of a swiming pool before taking his first plunge.Its root probably lies in the absence of personal conviction, born of experience and realisation, even amongst chairmen and managing directors.The stakes in a purified, coherent, elevated values-system do not seem to resonate in the hearts of most of them" (p. 117).

Concluding Remarks

We have emphasised the need for incorporating ethics as part and parcel of learning process in accounting education in India.A framework has also ben suggested for the purpose.A beginning in this respect is long overdue.The liberalization policies are likely to bring in many changes in education in the future.These changes will become more effective if operated in an ethical and responsible environment.Accordingly, the ethical foundations of accounting educators, researchers and students will become more important in the days to come.The premier institutions like the University of Calcutta may, therefore, provide leadership in this area also.

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Appendix I

Illustrative List of Ethical Dilemmas in Accounting

Opportunities to exploit judgment and estimation biases :

- — Estimation of uncollectible receivables.
- — Capitalising expenditures with questionable future economic benefits
- — Judgments on whether investments have experienced a decline in market value that is other than temporary.
- — Measurement of goodwill.
- — Appropriateness of discount rates in present value applications.
- — Reasonableness of current versus non-current classifications.
- — Appropriateness of market values in applying the lower-of-cost-or-market rule to inventories.

Opportunities to exploit pronouncement latitude or absence of relevant pronouncements :

- — Biased interpretation of disclosure requirements where sensitive information is involved.
- — Disclosure or non-disclosure of post-statement events.
- — Income statement classifications, especially operating vs. non-operating income.

Opportunities to exploit weak internal control :

- — Presence of excessive errors, possibly obscuring transactions that are questionable but not clearly fraudulent.
- — Existence of 'special purpose' cash funds.
- — Losses on abandonment of assets.
- — Manipulation of cost of goods sold through inadequate inventory controls.

(Source : *Journal of Accounting Education*, 7, No. 1 (Belkaoui, 1992, pp. 48-49)

Appendix II

Engle and Smith Study — Examples of Questionable Activities

A. *Research Activities*

1. Plagiarizing research.
2. Submitting a manuscript to two or more journals in violation of journal policy.

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3. Falsifying documentation for research grants.
4. Falsifying research data.
5. Not giving graduate student(s) coauthorship on publications when the student(s) contributions justified coauthorship.
6. Inappropriately giving a colleague a coauthorship status.
7. Presenting the same research to more than one regional or annual meeting (against meeting policy).

B. *Travel Activities*

8. Padding an expense account.
9. Attending a meeting at university expense and not substantively participating (most of the time spent sight-seeing, etc.)

C. *Student-related activities*

10. Using student assistants for personal work (e.g. running errands).
11. Allowing lecture notes to become outdated.
12. Cancelling classes when the faculty member is not ill and has no other university related commitments.
13. Using outdated text to avoid the effort necessary to revise notes, etc.

D. *Relationship with publishers*

14. Selling complimentary textboks to a used book salesperson.
15. Accepting a bribe (e.g. money, sex) from a publisher for a textbook adoption.
16. Adoption of a textbook in return for assets donated to the accounting department by the publisher.

(Source :AAA *Issues in Accounting Education*, Spring 1990, pp. 12-14.)

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Green Reporting : Honing the Ethical Edge of 'Black and White' Accounting

Kanika Mookerjee *

> "In the relations of humans with the animals, with the flowers, with the objects of creation, there is a whole great ethic scarcely seen as yet, but which will eventually break through into the light and be the corollary and the complement to human ethics....."
>
> (Victor Hugo, 1890, pp. 180-81)

The 'Turning Point' of Humankind

Nature and our relationship with it is one of the foremost concerns of this Age of Human Predicament.Questions about nature are inevitably value-laden because they compel us to raise fundamental enquiries into our moral, political, metaphysical and religious values (Clarke, 1993, p.9).At a time when the mechanistic view of life is fast losing ground, the legitimacy of our imperialism over nature can no longer be held as sacrosanct, especially in the face of the several serious environmental issues that confront us.

The American physicist, Fritjof Capra, in his seminal book, *The Turning Point* (1982, pp. 24-34), maintains that the world-view of man dominating nature is an outcome of the mechanistic model of the universe, and of an over-emphasis on the scientific method based on rational, analytic thinking supported by the Judeo - Christian tradition. 'The understanding of eco-systems is hindered by the very nature of the rational mind.Rational thinking is linear, whereas ecological awareness arises from an intuition of non-linear systems'.Consequently, ecological awareness is possible only if we combine our rational knowledge with an intuition for the non-linear nature of our environment.

Capra argues that there is an imminent need for a paradigm shift which is precipitated by revolutions within the 'new physics' of relativity and quantum theory—a reappraisal of the basic assumptions underlying our attitudes to the natural world and to our understanding of human nature and consciousness.These novel ideas challenge the mechanistic world-view that is conspicuous in Newtonian physics, the traditional notions of space, time and causality, and the characteristic determinism, reductionism and dualism of the old model.The alternative model is holistic, non-linear, synthesising, based largely on intuitive wisdom, and adopts an ecological or systems view of the interrelatedness and interdependence of all phenomena.Nature is percieved as a constant flux and flow of energy transformations, a network of interactions irreducible to the activity of discrete particles in which rigid determinism does not apply and where human consciousness cannot be isolated as a distinct segment of reality.The new paradigm reveals to us a picture of nature as a living organism,

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of human life as integral to the life of nature, with human beings as mental-physical wholes, and the world as a living community of beings who are inextricably linked.It is a view that goes beyond the confines of the empirical sciences because its image of the oneness of life is truly spiritual in which the human spirit is understood as the mode of consciousness in which the individual feels connected with the cosmos as a whole. *[Vide Note # 1]*

The mechanistic-reductionist paradigm, by contrast, misses the subtlety of nature's interconnectedness, with the result that it is cognitively weak and ineffective in responding to problems posed by nature. It refrains from recognising alternative modes of knowing that are intuitive, holistic and ecological.As a necessary corollary, the intimate connection of women's lives, work and knowledge with nature, and the role of partners that nature and women can play in creating wealth within sustenance economics, is lost sight of (Shiva, 1989, pp. 24-5).Hence, although as a system of knowledge for the market it is powerful and profitable, as a system of knowledge about nature and life, reductionist science is clearly inadequate.

Alluding to the *'yin-yang'* terminology of the ancient Chinese Taoist philosophy, Capra (1982, pp. 17-21) proposes a dynamic balance between *'yin'* (eco-action) or integrative activity and *'yang'* (ego-action) or self-assertive activity, since these are characteristic properties and complementary modes of functioning of the human mind.They represent 'two archetypal poles' where *'yin'* activity is conscious of the environment, is feminine, contractive, responsive, consolidating, cooperative and initiative.*'Yang'* action is conscious of the self, is masculine,aggressive, demanding, competitive, rational and analytic.

Such a dynamic balance between two polar opposite activities, two kinds of knowledge and two modes of consciousness is a cosmic process that reflects the ultimate essence of reality (which in Chinese philosophy is termed 'Tao').It would potentially foster a gradual ascent from an ideation of limited, relative physical truths 'cognisable by the five ordinary senses of man, and by reasonings based thereon' (Swami Vivekananda, 1993, p. 494), towards an all-encompassing, 'subtle, supersensuous, eternal truth'. *[Vide Note # 2]*.In this context, Capra (1982, p.33) affirms that 'scientific theories can never provide a complete and definitive description of reality.... To put it bluntly, scientists don't deal with truth; they deal with limited and approximate descriptions of reality...' He goes on further to suggest that 'modern physics can show the other sciences that scientific thinking does not necessarily have to be reductionist and mechanistic, that holistic and ecological views are also scientifically sound'.

Capra's phenomenal ideas were anticipated way back in 1914 by the noumenal, prophetic wisdom of Sri Aurobindo in *'The Life Divine'* which is a testament of a philosophy of Integralism embracing Man, Cosmos and the Transcendent in its synthesis.According to Sri Aurobindo (1993, p. 357) : 'The impersonal truth of things can be rendered into the abstract formulas of the pure reason, but there is another side of truth which belongs to the spiritual or mystic vision and without that inner vision of realities the abstract formulation of them is insufficiently alive, incomplete'. 'An integral knowledge

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demands an exploration, an unveiling of all the possible domains of consciousness and experience.For there are subjective domains of our being which lie behind the obvious surface; these have to be fathomed and whatever is ascertained must be admitted within the scope of the total reality' (p. 651).In our endeavour 'to remake ourselves in the divine image', Sri Aurobindo (1920, p.3) guides us to 'transform reason into ordered intuition; let all thyself be light.This is thy goal'.

The integration of intuition with reason as complementary modes of consciousness, on which the ecological paradigm is founded, will serve to consummate our one-sided, rational evolution and to rectify consequent cultural imbalances.The unity of '*yang*' and '*yin*' is wonderfully testified by the efforts of modern physics (which manifests an extreme specialization of the rational mind) at establishing a contact with mysticism, the essence of religion (which manifests an extreme specialization of the intuitive mind) [eg., see Capra (1975; 1979) and R. Penrose (1994)]. Progressively, all sciences based on the Cartesian world-view of Newtonian physics— biology and medical science, psychology and psychotherapy, sociology, political science, law, economics and accounting — will have to change to be consistent with modern physics.They will have to go beyond the mechanistic-reductionist approach in order to develop holistic ecological views.

As far as accounting is concerned, the impregnation of an ecological world-view into the otherwise traditional, technique - ridden, number -juggling realm of the accountant, has momentous implications.Historically, the development of accounting has followed in the footsteps of neo-classical economics, albeit with a pragmatic foundation.Thus, accountants, like economists, have hitherto professed value-freedom in their interpretation and objectivisation of social reality, even though values are inevitably infused into their work.The evasion of the question of morals has left accounting with a dehumanized, denaturalized, disinterested and unethical image.As Shiva (1989, p. 23) rightly points out :'The ultimate reductionism is achieved when nature is linked with a view of economic activity in which money is the only gauge of value and wealth.Life disappears as an organizing principle of economic affairs.But the problem with money is that it has an asymmetric relationship to life and living processes.Exploitation, manipulation and destruction of the life in nature can be a source of money and profits but neither can ever become a source of nature's life and its life-supporting capacity.It is this asymmetry that accounts for a deepening of the ecological crises as a decrease in nature's life producing potential, alongwith an increase of capital accumulation and the expansion of 'development' as a process of replacing the currency of life and sustenance with the currency of cash and profits'.

Surely then, the adoption of a holistic, ecological, systems approach to accounting (Mookerjee, 1992, p.67) is overdue in the interest of both, the future of humankind and that of the surival of the accounting craft.If accountants are to obviate threats of their extinction and if accounting intends to continue serving society by generating decision - useful information designed to reshape

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and restructure social and economic activity, it will *have* to address issues of morality and ethical praxis, first, at the humanistic level, and ultimately, at a naturalistic level.For, such issues are 'inseparable from all activities into which alternative possibilities enter, because their entry gives rise to a difference between better and worse' (Dewey, 1922).

The present write-up is sought to be developed against the aforesaid methodological backdrop of an emergent ecological world-view.It is purported to be evocative of an ethical soul-searching and provocative of appropriate human responses and action in addressing critical issues relating to the environmental predicament, which is a thoughtless bequest of the myopic *Homo economicus*.The major themes that will be dwelt upon sequentially, include the following :

i) assessment of the environmental predicament;
ii) establishment of the rudiments of an environmental ethic;
iii) explication of the nuances of a morality of sustainable development;
iv) role-prescriptions for the green business manager in operationalizing the ethic of sustainable development;
v) design of a framework for green accounting as an imperative for sustainable measurement; and
vi) a progressive turn towards a knowledge by Identity as the surest approach to a holistic environmental ethic.

Economic Activity as a Gamble with Surivival—Cornucopia or Catastrophe?

In comparison with the life-span of the earth, a two hundred year period is merely an infinitesimal point of time.Notwithstanding, the exploitative industrialism of the last two and a half centuries has effected dramatic and traumatic changes on 'the chemistry of the atmosphere and the genetic diversity of the planet' (Carley and Christie, 1992, p. 17).What is more, these changes have been far-reaching enough to transform the planet in ways which would take natural processes and earlier civilisations more than a millenium to achieve.

Today, the earth is in a vicious cycle, precariously poised, yet stoically awaiting, the occurrence of another catastrophe of the likes of Love Canal, Exxon Valdez, Bhopal or Chernobyl.Worldwide, apprehension is rife of an impending global environmental crisis.Both, Right Wing and Left Wing ideologists are unanimous in their identification of the Industrial Revolution as the root of the causal links that have eventuated in this environmental crisis.The former group sees the immediate causes of the predicament lying in popular affluence, energy crisis, pollution, unemployment, political instability, Third World poverty, and loss of rain forests.For the latter group,the immediate causes of the crisis appear to be multi-national plutocracy, producer sovereignty, growth of synthetics and auto industry, planned obsolescence, Third World poverty and coloured migration (Young, 1990, pp. 142-3).At any

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rate, it is clear that unscrupulous and wanton economic activity on a global scale is to blame.We can no longer afford to be euphoric over our paternalistic and non-sustainable indicators of economic development which are destructive of the idea of mutuality.The limits of our planet, and the greater community and society in which economic activity occurs cannot be dismissed or ignored.In this context, Capra (1982, pp. 194-5) states : "Present-day economics is characterized by the fragmentary and reductionist approach that typifies most social sciences.Economists generally fail to recognize that the economy is merely one aspect of a whole ecological and social fabric; a living system composed of human beings in continual interaction with one another and with their natural resources, most of which are, in turn, living organisms.The basic error of the social sciences is to divide this fabric into fragments, assumed to be independent and to be dealt with in separate academic departments'.

Logically, therefore, it would be wise to acknowldge that humankind's unpremeditated and ruthless economic experiment with the use of a symphonically balanced and beautiful ecosystem has rendered the earth a closed system.It is time that supranational economic and political systems contained their functions within the natural and social boundaries of the planet's biosphere and 'sociosphere'.For, the stakes here are indeed very high — either we will achieve a more balanced world, or, otherwise, we have to settle for one that is plagued by environmental disasters and gross disparities between rich and poor.Today, the earth is reduced to a small, fragile planet limited in the life-sustaining resources needed to support an exponentially growing population base with ever-increasing demands.Such a dilemma puts short-term economic gratification in direct conflict with long-term survival of the species (Stead and Stead, 1992, p. 13).

The nature of this dilemma can be depicted more clearly by means of the issue wheel (Stead and Stead, 1992, p.21) which shows how non-sustainable economic growth and exponential growth in population are acting in concert to create far-reaching concentric ecological problems.Both of these factors, constituting the hub of the wheel, lead directly to an incessant increase in production and consumption.These, in turn, continue to deplete resources and foul the earth with wastes and pollutants.The resultant problems are environmental catastrophe, poor quality of air and water, loss of bio-diversity, climatic changes, desertification and deforestation, and a lower quality of life now and for posterity.*Exhibit 1* illustrates the issue wheel.Interestingly enough, Myers (1990, p. 162) has reckoned that the estimated expenditure required to 'repair the environment' i.e. to restore environmental security, amounts to eight weeks global military expenditure at levels incurred in the late 1980s. Details are shown in Table 1.

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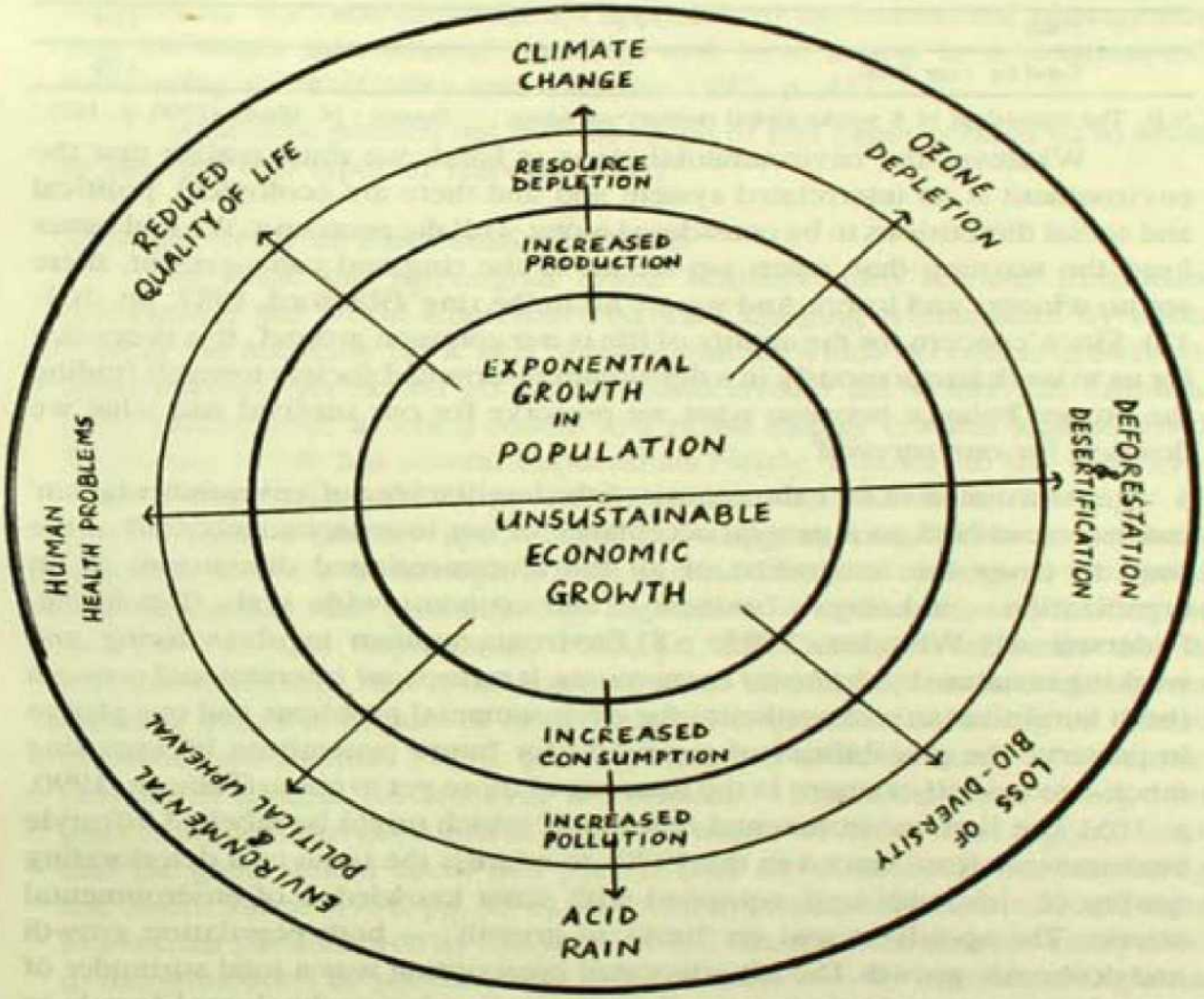
EXHIBIT - 1
THE ISSUE WHEEL



(Source : Stead and Stead, 1992, p.21)

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Table 1. Estimated expenditure to 'repair the environment'

	$ Billion
Protect world's top soil	09
Restore world's forests	03
Halt desertification	04
Raise energy efficiency	10
Develop renewable energy	05
Slow down population growth	18
Supply world with clean water	30
Write-off Third World debt	30
Total	109
Total by year 2000	170

N.B. The equivalent of 8 weeks global military spending. Source : N. Myers (1990, p. 162)

Whatever the environmental issue at hand, we must realise that the environment is an interrelated system and that there are ecological, political and social dimensions to be considered along with the economic.We had better heed the warning that 'when we are all in the ring and can't get out, there are no winners and losers.And we are all in the ring' (Redford, 1987, pp. 107-12). Since 'concern for the quality of life is our common ground', it is necessary for us to work harmoniously in a development-oriented society towards finding the proper 'balance between what we preserve for our survival and what we develop for our survival'.

As a matter of fact, the genesis of the familiar idea of 'envrionmentalism' can be traced back to a general acceptance of our interdependence and of the need to cover the integration of all the aforementioned dimensions at an organization -, industry -, business -, and economy-wide scale (Beaumont, Pedersen and Whitaker, 1993, p.8).Environmentalism involves living and working in nature by the *homo economicus*. It reflects an international concern (both huminitarian and aesthetic) for environmental problems and our pledge to preserve the possibilities of our world for future generations by imposing much-needed self-restraint in the interests of those yet to come (Hanson, 1990, p. 185).The first 'environmental revolution' which might be labelled 'lifestyle environmentalism' started in the 1970s to address the issue of a deteriorating quality of life, although, equipped with scant knowledge of environmental science.The spot-light was on 'limits to growth' — both population growth and economic growth.The oft-advocated prescription was a total surrender of growth (zero-growth) in favour of an alternative low-technology lifestyle in concordance with nature.The first environmental revolution created a ratchet effect and helped to raise our environmental consciousness considerably.At present, a second environmental revolution is under-way which professes a more accomodative environmentalism replete with the philosophy of sustainable development.

This new environmentalism is based on a belief that the environmental 'metaproblems' confronting humankind clearly out-strip the capacities of science and technology to provide technical solutions and that they have strong political,

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philosophical, cultural and religious overtones.The appropriate responses in these circumstances are threefold (Carley and Christie, 1992, p. 40) : (i) strategic and philosophical reflection on the future course of industrialism as a form of social organisation for fulfilling human needs; (ii) the development of organisational and regulatory capacity for managing sustainable development at scales varying from the global to the local; and (iii) research and development to generate new knowledge and appropriate technologies in sustainable energy, agriculture, transport and low-waste and low-energy manufacturing.These three types of responses are interdependent and require an 'action-centred networking' (i.e. non-hierarchical) approach to environmental management that facilitates international learning, and local action in a 'continuously reinforcing cycle' (Carley and Christie, 1992, p. 41).

It must be pointed out that the scope of this paper permits us to attend to the first two types of responses only.

The Search for an Environmental Ethic

In 1988, the Norwegian Prime Minister, Gro Harlem Brundtland inaugurated the World Conference on the Changing Atmosphere by underscoring the necessity for a 'new holistic ethic in which economic growth and environmental protection go hand-in-hand around the world'.The emphasis on a 'holistic ethic' as being central to a global change towards a qualitatively better way of life has several implications.Firstly, it points to the veracity of Hugo's observations (1890, pp 180-1) cited as the prelude to this paper and made almost a century ago.Secondly, it suggests that, hitherto, economic activities have, for the most part, been unethical from an ecological standpoint. The 'minimalist ethic'guaranteed by legislation is inadequate and is often not brought into play(Hopfenbeck, 1993, p. 303).Thirdly, it indicates that the present ecological crisis is the outcome of an ethical vacuum in contemporary business ethics in respect of environmental responsibility, owing to a crisis of perception.Brennan (1992, p.2) explains this crisis in terms of Aristotle's problem of '*akrasia*' (in Greek) or 'incontinence' i.e. an instance of wrong doing associated with bad decisions in situations where we *know* what is good, *desire* that the good should occur and yet our *acts* are contrary to our knowledge and desire.Sartre (1958, pp. 55-6), in his interpretation of existentialism, refers to a similar phenomenon as 'bad faith' or self-deception' which is closely allied to incontinence.The phenomenon of incontinence in its turn leads to partial, shallow analysis and myth-making of the truth of environmental problems which inhibits and deludes their resolution [*Vide Note # 3*].In our bid to overcome shallow and mythic thinking, we have to develop a sound environmental ethic and conjoin it with contemporary business ethics.

What are the potential contribution(s) latent in such an ethic? Agreed that ethics is concerned with the disciplined reflection by persons in all walks of life on moral ideas and ideals, at least five tasks may be enumerated which ethics is being asked to perform (Engel, 1992, pp. 6-9) :

i) There is a current awareness of the *role of values* and the 'missing

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concept' of culture as a determinant of human behaviour and activity, in addition to the economic, social and political factors. It is associated with the rejection of the assumption of value neutrality and impartial objectivity in the practice of science, public policy and professional activity. Ethics is therefore being called upon *to understand* and evaluate the moral codes enmeshed in cultures in terms of their possibilities of enhancement or distortion of relationships among human beings and their relationship with the earth.

ii) There is a new appreciation of the ways in which *moral ideals motivate persons* to care for the world around them. Here, ethics does two things. It *voices the moral conscience* of persons, expresses their moral intuitions and empowers them to share their feelings with others. It also *encourages a recontact* with the originating moral motivations of the modern conservation and alternative development movements.

iii) Contemporary development and environment issues are laden with *moral implications* that must be understood and carefully weighed before intelligent choices can be made. Ethics is entrusted with generating *'ethical' clarity* to moral concepts with the same rigorous intellectual attention as that accorded to scientific, technical and legal considerations.

iv) There is an urgent need to resolve some of the outstanding *value conficts* that thwart conservation and development projects (e.g., the presumed conflict between resource conservation and ecocentrism). Ethics can help in *resolving such conflicts* by redefining the issue so that the values in each position that are worthwhile, yet conflicting, may be seen as potentially reinforcing and achievable in concert.

v) There is a growing interest in the task of *defining a new social paradigm* for promoting sustainable development in each culture and region of the world. In the shift from the modern paradigm (characterized by competition, consumption and unlimited economic growth; prevalence of technology; hierarchies of power, wealth, status or sex; dichotomy of resource conservation versus ecocentrism, development versus conservation, humanity versus nature, theory versus practice) to a 'post-modern' paradigm, ethics must serve as *critic and builder*, thereby enabling us to take a self-critical ethical posture towards the fundamentally assumed values of our culture and to envisage 'a new holistic ethic' of sustainable development.

In applying our moral creativity to developing 'a new holistic ethic' we must be cognisant of the nature of our environmental responsibility. We must also have a genuine appreciation of the place of human beings in the ecosphere. Referring to Passmore's (1974) analysis, we observe that a statement of

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environmental responsibility has the form of a six-place relation as follows:

R (A, O, G, X, C, J)

where,
- R = Responsibility,
- A = Agent who takes responsibility (i.e. *whose* responsibility?),
- O = Object entity or system for which responsibility is taken (i.e. responsibility *for what* ?),
- G = Ground of responsibility (i.e. responsibility *to whom* ?),
- H = Some aspect with respect to O (i.e. what aspects of the system are of *immediate policy interest* ?),
- C = Conditions or constraints within which responsibility is to be taken (i.e. responsibility *under what* conditions?),.
- J = Reason (i.e. *Why* should responsibility be taken?),

In spelling out the nature of environmental responsibility, we focus our attention on the possibilities for the *for, to* and *why* ? (i.e. O, G, and J).

As far as *for* is concerned, we (i.e. humankind) may be responsible *for* either nature or just ourselves.Now, this responsibility may be *to* God, nature or just ourselves, *because* (why?) either God commands it, it is prudently in our self-interest, or it is ethically required.All these possibilities generate eighteen possible alternatives to consider as shown in *Exhibit - 2* (Hooker, 1992, p. 149).Passmore himself thinks that our primary responsibilities are directly only for humans in our own self interest i.e. For = Ourselves, To = Ourselves and Why ? = Prudence location.This is the imperialist 'man as despot' attitude implicit in the Judeo-Christian tradition.The 'man as steward' posture which recognises nature's intrinsic value as existing to glorify God, takes a position where For = Nature, To = Transcendent and Why ? = Transcendent location.The 'man as creator' stance is interventionist and looks to humanity as a perfector of nature because of the intrinsic value it has.In this case, For = Nature, To = Nature, Why ? = Ethical location.The last position is the only one which is distinctively ethical.

Although the tri-dimensional model of environmental responsibility 'assigns a simple, single-entry to ethics' (Hooker, 1992, p. 153), the nature of ethics is both complex and wide-ranging.Ethics, as distinct from morality, is a disciplined reflection about morality, moral problems and moral judgments; whereas morality refers to the judgments and actions of what is right or good, *per se* (Frankena, 1973, p. 4).Therefore, ethics is often referred to as moral philosophy.It is concerned with the pursuit of what we deeply value in a way which rises above individual points of view, interests and human imperfections. Within its scope, ethics embraces potentially diverse components as may be discerned from *Exhibit -3*.The components conflict among themselves and also ramify into attractive conflicting options.For instance, as Passmore (1974) points out, the right to free assembly may lead to an ecology being trampled (rights versus values).What we can safely infer from *Exhibit - 3* is that ethics does not seek to search for a single correct response to a given situation which would simultaneously satisfy all values and principles.Responsible ethical

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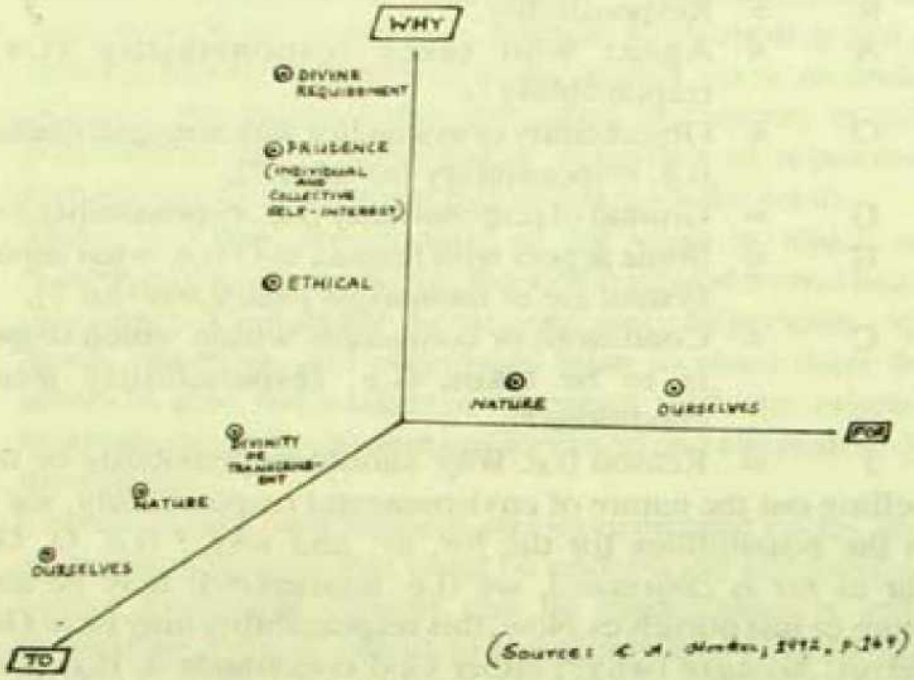
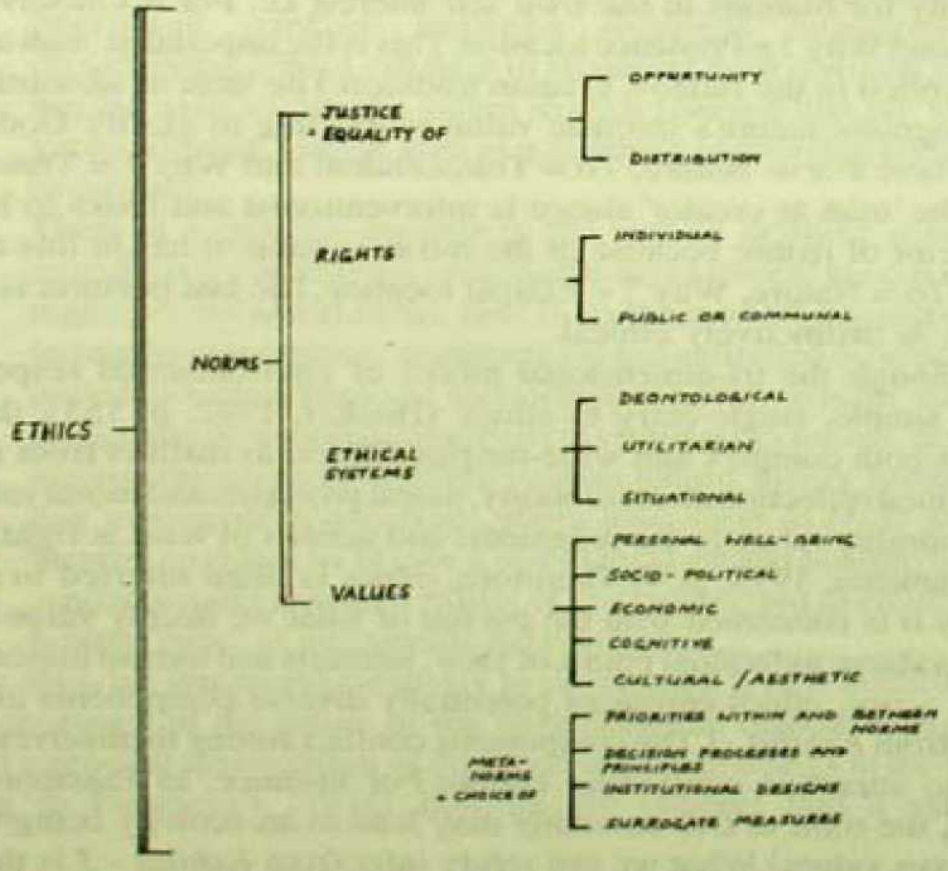
EXHIBIT - 2
ENVIRONMENTAL RESPONSIBILITY : FOR, TO AND WHY ?



(Source : C. A. Gordon, 1992, p. 149)

EXHIBIT - 3
COMPONENTS OF ETHICS



(Source : C. A. Gordon, 1992, p. 154)

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judgment must, of necessity, 'know how to balance values and principles against one another intelligently' (Hooker 1992, p. 155).

Another pertinent question in shaping an environmental ethic is whether ethics is formulated in terms of individuals or in terms of whole complex systems such as societies and ecologies.Also, which classes of individuals or systems have features worthy of ethical consideration ? The stances generated in reply to the aforementioned questions are presented in the matrix below in *Exhibit - 4* (Hooker, 1992, p. 155).

This classification is by no means complete but it is a convenient way of presenting the main strands of environmental thinking.In reality, there could be as many types of environmental attitudes as there are people with an interest in it.

A more simplistic,yet, popular analytical framework for classifying environmental attitudes is provided by O'Riordan (1981, p.1) in terms of the bi-polar ideologies of *ecocentrism* and *technocentrism*.The essence of ecocentrism is captured in the environmental responsibility position where For = Nature, To = Nature and Why ? = Ethical location.One of the earliest proponents of this school of thought was Carson (1962).Subsequently, Arne Naess (1973, pp. 95-100; 1990, pp. 130-7) and James Lovelock (1979; 1990, pp. 158-72) championed the cause of ecocentrism by forwarding the concept of Deep Ecology and the Gaia Hypothesis, respectively *[Vide Note # 4]*. The ecocentrists lack faith in modern large-scale technology, technocratic and bureaucratic elitism, centralisation and materialism.Their mode of thinking rests upon the supposition of a natural order in which all things move according to natural law.Ecocentrism advocates the virtues of reverence, humility, responsibility and care.It is not anti-technological but argues in favour of low-impact technology.It decries bigness and impersonality and seeks a code of behaviour that espouses permanence and stability based upon an ecological world-view of diversity and homeostasis.If politically to the right, ecocentrists stress the idea of limits, advocating compulsory restraints on human breeding, resource consumption and access to nature's 'commons'. If politically to the left, their emphasis is on decentralised, democratic, small-scale communities using 'soft technology' and renewable energy, and 'acting locally but thinking globally'.

For the technocentrist, the environmental responsibility position is For = Ourselves, To = Ourselves and Why ? = Prudence location.Technocentrism recognises environmental problems but assumes arrogantly that man is able to understand and control events to suit his purposes.The 'cornucopians' believe that man, unrestrainedly, will always tide over environmental crises and achieve unlimited growth, while the 'accomodators' are more prudent in advocating careful economic and environmental management for negotiating those problems.Either way, considerable faith is placed in the ability and usefulness of classical value-free science, technology and conventional economic reasoning.

Ecocentrism is concerned with ends and the proper kinds of means whereas technocentrism focuses on means *per se* e.g., utilisation of manage-

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EXHIBIT - 4
RAMIFICATIONS OF ENVIRONMENT ETHICS

FOCUS OF ETHICS	EGOCENTRIC	ANTHROPOCENTRIC	ECOCENTRIC
INDIVIDUAL	ECOLOGICAL IMPERIALISM SHALLOW ECOLOGY TECHNOCENTRISM RESOURCE CONSERVATION		ANIMAL RIGHTS MOVEMENT
COMMUNAL	STEWARDSHIP VIEW MARXIST TRADITION		DEEP ECOLOGY GAIANISM

ETHICAL WORTH CONSIDERATIONS

(Source : L. A. Hawker; 1992, p.155 [Adapted])

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ment principles.Here, the natural environment is treated as 'neutral stuff' from which man can profitably shape his destiny.To ecocentrists, all, living things have intrinsic value; to the utilitarian technocentrist, they can have only instrumental value by virtue of their benefits to sentient beings.For ecocentrists the ethics and morals of environmentalism are of secondary importance.What is of primacy is to get back to the basics, to get people to see reality and our relationship to nature so that we do not trample on natural life.Supporters of technocentrism on the other hand, believe that reforming human relations towards nature can be done within the existing social structure by making small changes within the institutions.They do not get down to the basics because they think that business can go on as usual with the introduction of minor reforms.

A final point to consider in developing an environmental ethic is the level of ethical claim to adopt.Hooker (1992, p. 156-7) outlines the following four *levels of discourse* as :

(a) *Ethics* i.e., theories of obligation or responsibility or rightness as discussed above;

(b) *Meta-ethics* i.e., theories of the nature of ethics itself e.g., ethical principles are divine commands, or biological necessities, or a consequence of rational self-interest or strong intuitive truths;

(c) *Applied ethics* i.e., combinations of ethical principles with other principles such as economic, political and legal, and with actual information, to develop practical principles;

(d) *Morality* i.e., the actual practices of a family, community or culture which manifest and support some ethic.

In the end, to have a coherent position regarding ethically based environmental responsibility, we need to select an alternative from *Exhibit-2* and one from *Exhibit - 3* and to integrate them with a consistent set of instances from all the categories presented in *Exhibit - 4* and a similar selection from all the levels of ethical discourse.These four selections must 'mutually cohere' to constitute a workable body of theoretical ideas and moral praxis.

The New Ethics of Sustainable Development

Ethicists throughout the world, in their quest for a 'new holistic ethic', are convergently thinking about an alternative social paradigm of '*sustainable development*' which can hopefully be elevated to a global ethic that recognises and promotes the mutuality of ecological and social values in living communities.

The concept of 'sustainability' was born with the publication of the World Conservation Strategy in 1980 under the aegis of the International Union for the Conservation of Nature and Natural Resources (IUCN).Here, sustainability was advanced as a strategic approach to the integration of conservation and development which is in conformity with the threefold objectives of ecosystem maintenance, preservation of genetic diversity and sustainable resource utilisation.John Davis (1991, p. 20) ascribes the 'sustainability' idea to two seminal events of the 1970s, namely, (i) the publication of the Report of the

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1972 Stockholm Conference of the U.N. on 'The Human Environment', entitled 'Limits to Growth - a Report of the Club of Rome', and (ii) the idea of a new sustainable economics linking 'Soil, Soul and Society' expounded by Dr. E.F. Schumacher in his book 'Small is Beautiful' (1973) *[Vide Note # 5]*.

The year 1983 witnessed the first comprehensive attempt at operationalizing the concept of sustainability by the World Commission on Environment and Development (WCED) (established by the U.N.) in the form of 'sustainable development' as 'a global agenda for change'. The Commission, under the leadership of Gro Harlem Brundtland, Prime Minister of Norway, published its final report in 1987, entitled *'Our Common Future'* (popularly known as The Brundtland Report). The WCED (1987, p. 43) defined sustainable development in general terms as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. It implies that economic growth, in and of itself, is not sufficient for the purposes of development (Shearman, 1990, pp. 1-8) and that development can occur only if there is a recognition of the need to sustain and expand the environmental resource base. The definition also makes it clear that an understanding of four key aspects is fundamental to the concept of sustainable development, namely :

i) *Environment* : as the interaction of the biosphere (i.e. the biophysical, natural domain) and the sociosphere (i.e. the socio-political human components) ;

ii) *Development* : as a process of qualitative and equitable growth rather than just an economic activity;

iii) *Society* : as an interdependent world community reliant upon a single biosphere wherein global economic growth cannot succeed with an inequitable distribution of wealth; and

iv) *Linkages* among poverty, inequality and environmental degradation.

The idea of sustainable development is a logical outcome of the negation and consequent replacement of a series of six 'flawed' assumptions that underpin conventional economic development (Davis, 1991, pp. 22-6). These contrasting assumptions are presented below :

Unsustainable economic development assumptions	Sustainable development assumptions
1. *Indiscriminate development :* Increasing indiscriminate growth of financial transactions will produce benefits and prosperity for all by virtue of the 'trickle down' theory.	1. *Discriminate development* : Economic activity should not only be efficient in its use of all resources, but should also be socially just, and environmentally and ecologically sustainable.
2. *Unconstrained use of resources and the environment* : Natural resources are unlimited and can be unconditionally exploited; the environment is also unlimited	2. *Resource conservation and care for the environment* : Renewable and non-renewable materials and energy sources should be distinguished; preference should be

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Unsustainable economic development assumptions	Sustainable development assumptions
in its capacity to withstand in all its forms.	given to renewables wherever possible. Restocking of renewables for maintaining the balance of natural stock is essential. The extraction, processing, use and disposal of resources must be planned to avoid damage to nature and to maintain ecological balance.
3. *Maximisation of manufacture* : Capital-intensive manufacturing is universally more efficient and productive than labour-intensive repair and reconditioning services.	3. *Maximisation of the 4-Rs* : Consumption of virgin materials and manufacturing energy will be minimised if things are designed for maximum durability and repairability by resorting to the 4-R services of repair, reconditioning, reuse and recycling.
4. *Unskilled work* : Earning a living is inevitably a demanding activity. All that is needed to satisfy workers is an adequate financial reward; the nature of the work required is of no importance.	4. *Creative Work* : Work should be organised in a variety of ways to make the fullest possible use of human talent, energy and creativity in the satisfaction of all human needs — physical, mental, emotional and spiritual, through personal responsibility, mutual aid and government enabling.
5. *Maximisation of material growth* : People have an unlimited hunger for possessions. So long as they conform to fashion they are an acceptable mark of social status and the principal means of personal satisfaction.	5. *Maximisation of non-material growth* : Material growth has to be limited within the bounds of sustainability. However, no such restrictions need to be applied to human activity that is non-material and not energy-intensive (e.g., the arts, social services, education, health-care).
6. *Impersonal investment* : So long as growth and/or a good return can be obtained on savings, people are not concerned who invests them nor what purpose they are intended to serve.	6. *Self-directed personal investment*: To enable discriminating development to take place, opportunities must be available for people to direct their savings into investments that will facilitate such a development.

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Over the last decade, a substantial literature on the theme of sustainability has grown (e.g., Clark and Munn, 1986; Brown et. al, 1987; Jacobs and Munro, 1987; Redclift, 1987; Rees, 1988; Turner, 1988; Archibugi and Nijkamp, 1989; Daly, 1990; Dovers, 1990; Pearce and Turner, 1990; Turner and Pearce, 1993). Much of this literature is devoted to the clarification of the meaning and application of sustainability within the field of environmental economics and to the distinctions between 'sustainability', 'sustainable development', 'sustainable utilisation', 'sustainable growth', 'sustainable economy' and 'sustainable society'.

Though much confusion exists in providing precise definitions of all these terms, 'sustainability' and 'sustainable development' are clearly seen as 'embracing ethical norms' (O'Riordan, 1988, p.30) relating to biotic rights of survival of living matter, to the rights of future generations and to the institutions responsible for ensuring that such rights are fully recognised in policies and actions. 'Sustainable utilisation' and 'sustainable growth' are more 'manageable and politically acceptable' connotations of the sustainability concept. A 'sustainable economy' is the product of sustainable development which maintains its natural resource base and can continue to develop by adapting, learning and improving. A 'sustainable society' embraces the ethic of living sustainably by avowing the values and duties of respect and care for nature and for other people.

Notwithstanding the abundance of definitions of 'sustainable development' (for instance, see Pearce, Markandya and Barbier, 1989, pp. 173-85), there appears to be considerable difficulty in pinning it down in explicit and precise terms. Pearce et al (1989, p.1) have lamented that 'it has come to mean whatever suits the particular advocacy of the individual concerned'. Brown et al (1987) were concerned that sustainability was evolving into a 'transcendent term' owing to frequent but improper usage. In this connection, it must be noted that 'sustainability' is used predominantly as a modifier (Shearman, 1990, p.3) and that a definition of sustainability is not as important as the necessity to understand its implicative meaning. A perusal of several definitions and/or descriptions of sustainable development reveals the following common features:

i) There is an inherent contradiction in the pursuit of the basic goal of development, reliant on unlimited economic growth, which might result in human suffering. Growth, like anything else, can cost more than it is worth, at the margin [*Vide Note # 6*].

ii) Sustainable development is a bequest to the future. The concern is not simply one of short-term development but a deeper issue of distribution and allocation relative to the future of the whole globe. *Exhibit - 5* shows a reordering of priorities within such a framework.

iii) It signifies a 'return to nature' after a century-long obsession with industrialisation, trade and urbanisation as the symbols of national progress.

iv) There is a substantially increased emphasis on the value of natural, built and cultural environments, with environmental quality being

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seen as an increasingly significant factor in contributing to the wider development objective of an improved 'quality of life'.

v) Accordingly, resource accounting is a key element in the conceptual framework of sustainable development because it treats the natural resource base, including the life support system of the planet as capital assets whose quantity and productivity must be preserved as a basic condition for human progress [*Vide Note # 7*].

vi) Sustainable development places emphasis on intragenerational equity (i.e. providing for the needs of the least advantaged in society) and intergenerational equity (i.e., a fair treatment of future generations).

vii) In its very essence, sustainable development requires a transnational and global approach.The difficulty with a national or regional approach is that global resources (e.g. oceans, bio-diversity, the upper atmosphere) are common to all nations, and limiting their deterioration depends on cooperative efforts of nations.Furthermore, social scientists believe that the focus of environmental and resource policies should be global since future national boundaries may be quite different or may not even exist.What is necessary is to develop a global perspective and simultaneously, to focus on theoretical and policy issues at a regional, national and local basis - i.e. to 'think globally and to act locally'.

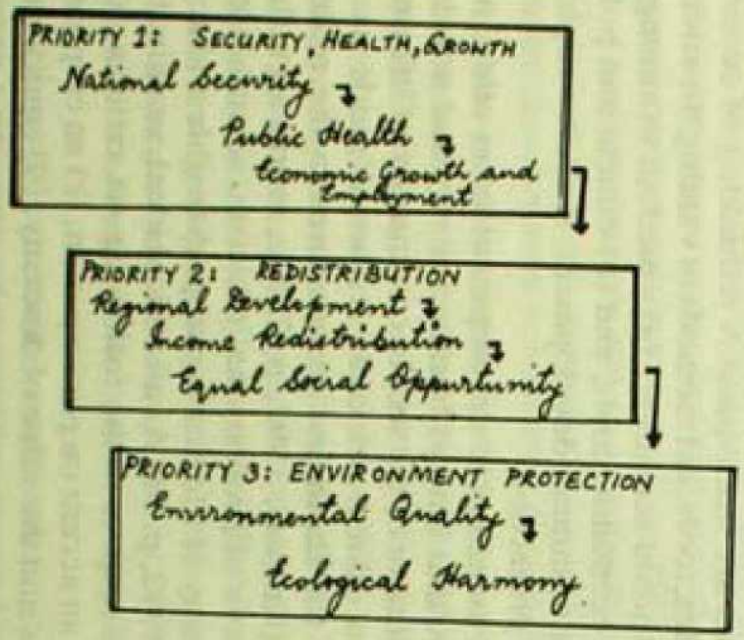
viii) Sustainable development, however defined through economic concepts, aims at a 'dynamic steady-state economy (i.e. a sustainable economy) that adapts its activities to the carrying capacity of Gaia [*Vide Note # 8*] and forces continual qualitative improvement.

ix) Sustainable development is a political process rather than just a technical process where purely technical solutions to environmental problems are inadequate.A rethinking of economic and accounting principles, tools and methods of valuing the environment is called for, which should accentuate (a) a mediation among social, environmental and economic goals, and (b) ethical and political considerations relating to human development, resource exploitation and environmental protection.

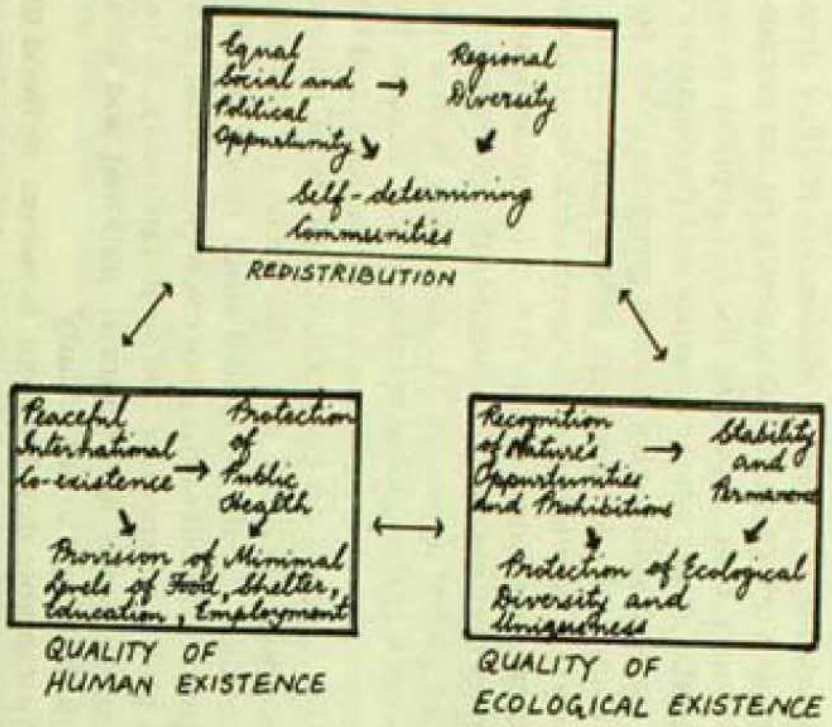
Above all, sustainable development is an ethic, not a rhetoric.It is an ethic that nurtures 'that kind of human activity that nourishes and perpetuates the historical fulfilment of the whole community of life on Earth' (Engel, 1992, pp. 10-11). As an ethical principle it should guide us in restructuring our relationship with the Earth and its creatures in the realm of knowledge and arenas of action (Kothari, 1992, p. 27).Its moral significance lies not in the specialised concerns of professional ethicists, scientists or technocrats, but in a vision of a new way of life that is comprehensible and accessible to all human beings (Kothari, 1992, p. 34).As an ethical ideal, sustainable development may be identified with respect to the following six criteria : (a) a holistic view of development; (b) an accent on participation; (c) an emphasis on the importance of local conditions and the value of diversity; (d) equity based on the autonomy and self-reliance of diverse entities; (e) a normative perspective on the future

EXHIBIT-5
PRIORITIES OF NATIONAL GOALS IN
ALTERNATIVE DEVELOPMENT FRAMEWORKS

HIERARCHY OF NATIONAL GOALS IN THE CONVENTIONAL UNSUSTAINABLE ECONOMIC DEVELOPMENT FRAMEWORK



REORDERED NATIONAL GOALS IN A SUSTAINABLE DEVELOPMENT FRAMEWORK



(Source : O'Riordan ; 1981, pp. 20-6)

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from the viewpoint of coming generations, and (f) a cosmic view of life as sacred.

Managing for Sustainable Development — The Green Management Revolution

The ethic of sustainable development signals fundamental changes in all aspects of business life and in the very assumptions that guide it.Holistic principles of business must precede rational and primal ones.Shrivastava (1993, p.31) has critiqued the existing concepts of organisational environment as being impotent and incapable of genuinely addressing the concerns of environmentalism.He uses the term CASTRATED as a suitable mnemonic for critiquing the assumptions underlying the concept of organisational environment as proposed by contemporary organisational researchers and managers.CASTRATED stands for Competition, Abstraction, Shallowness, Theoretical Immaturity, Reification, Anthropocentrism, Time independence (ahistorical), Exploitable and Denaturalized.*Exhibit - 6* portrays the CASTRATED assumptions relating to business environment within an unsustainable development framework.

EXHIBIT 6

CASTRATED ASSUMPTIONS OF ORGANISATION'S ENVIRONMENT

1.	COMPETITION	: Antagonistic exploitative relations between organisation and its environment for resources.
2.	ABSTRACTION	: The environment is an abstract social entity composed of abstract economic, social, cultural and technological elements.
3.	SHALLOWNESS	: Analysis is shallow with natural, physical and concrete aspects of the environment being de-emphasised.
4.	THEORETICAL IMMATURITY	: It is descriptively inadequate and lacks specificity
5.	REIFICATION	: It reifies organisations and gives them higher status than that accorded to nature.
6.	ANTHROPOCENTRISM	: It does not acknowledge the right of nature to exist, except for the welfare of human beings.
7.	TIME INDEPENDENCE	: The environment is portrayed as a time-independent variable. Linkages to social and historical processes are ignored.
8.	EXPLOITABLE	: The environment is exploitable without limits.
9.	DENATURALIZED	: Harmonious co-existence with nature is overlooked due to the predominance of a despotic, exploitative attitude.

The ethic of sustainable development challenges the 'fundamentally flawed concept of organisational environment' (Shrivastava, 1993, pp. 31-2) and requires the entire industrial and commercial system to restructure itself, based on a totally different set of assumptions about the conduct of economic activities.Davis (1991, pp. 23-4) proposes an alternative set of assumptions

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along the following lines : (i) The essential purpose of a business is to provide goods and services to meet *some* of the needs of a defined sector of the market; (ii) The continuity of a business that is performing satisfactorily in fulfilling its purpose should be protected; (iii) The well-being of all other stakeholders is as important as that of equity shareholders; (iv) Business operations through the use of technologies should enhance the environment and contribute to ecological balance rather than damage it ; (v) Renewable energy and materials should be used as far as possible, and all forms of waste should be minimised; (vi) A company does not own all its resources; it holds them in trust to make the best possible use of them on behalf of the community; (vii) Operating units should be kept as small as the maintenance of efficiency allows; (viii) Investment must assign equal weight on the long-term as well as the short; (ix) Companies should be dynamically creative, seeking to achieve higher levels of excellence and quality in all aspects of their business, by making the best use of human skills and technologies; (x) Managers and employees should be enabled to participate to the limits of their abilities and have a sense of 'ownership with dignity'; and (xi) Top management of companies should be guided by a General Purpose Clause that reflects these assumptions.

If managers and organisational researchers are to seriously attend to the task of greening business, they must work with a more nature - centred concept of organisational environment, and a modified value system and culture compatible with the foregoing assumptions.Organisational environment should be conceptualized as an 'economic biosphere' which includes three elements : (a) the ecology of the planet Earth as the most critical environmental element, (b) the world economic, social and political order, and (c) the immediate economic, technological and socio-political context of the organisation (Shrivastava, 1993, p.35).Historically, management has seen only the immediate surrounding conditions as *the* relevant environment of the firm.This expanded view of the environment implies a new view of organisation-environment relationships.Human activities including economic activities are a sub-system of the biosphere.The economy is inextricably integrated with the natural environment and so are economic organisations as vehicles of economic activities.The relationships do not involve passive reactive interdependencies, but rather, two-way mutual influences that sustain each other.

A change in assumptions regarding organisational environment would lead to very different expectations of people from corporations, and to cope effectively with these altered expectations, alternative value systems must be understood and adopted.*Exhibit - 7* depicts differences between traditional values prevalent in organisations and the new emerging ecological values that managers should espouse.Sustainability is implicitly the transcendent core value in the new system, which defines the essence of the other instrumental values.

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EXHIBIT 7

Values relating to	Traditional view	Ecological view
1. Human beings	Individualism	Communitarianism (i.e. humans as part of a larger natural community)
	Self-interest	Community interest
	Independence	Interdependence
	Hierarchical relationships	Network relationships
2. Nature	Inanimate	Living system
	External and separate from humans	Part of the human community
	Exploitable	Symbiotic
3. Relation of humans to nature	Anthropocentrism	Harmonious with nature (Ecocentrism)
	Subdue and conquer nature	Nurture and conserve nature

Managers cannot afford to reject such values any longer as radical or impractical.Much to the contrary, companies must attempt to accommodate them by altering their own value systems and culture, by re-educating organisational members, and by re-aligning company products and technologies to more environment-friendly alternatives (Pauchant and Mitroff, 1988).

The implications of using sustainability as a strategic decision-making criterion are far-reaching.It improves the organisation's ability to reflect moral dimensions of society in its decision-making process.It would also compel the limits of the ecosystem to be accounted for in business decisions, ranging from choosing energy sources, to determining distribution channels, to designing the work carried on by employees.It is a unifying force in turning the attention of business organisations and environmental groups away from the Left and the Right and towards *'Out front'* i.e. the future of the planet. [*Vide Note # 9*] The orientation of sustainability towards wholeness, posterity, smallness, quality, and community (Stead and Stead, 1992, pp. 129-41) helps to focus managers' attention on alternative solutions that go beyond currently perceived dilemmas.

In order to imbibe sustainability as a core value in business life, a radical re-orientation is imminent in critical areas of business.These might be effected by way of a grandiose transformational strategy integrated within the strategic management process.Davis (1991, pp. 28-38) explicates the under-mentioned nine areas of re-orientation.

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(i) *Vision of Stewardship* : The radical change arising out of a moral choice to pursue sustainable development must result in a change in the vision (as made explicit in the 'mission statement') and shared values of commercial enterprises.Aspirations for leadership in durability, repairability and energy efficiency should become more conspicuous.

(ii) *Appropriate Scale of Operation* : The optimum size of operations should be carefully considered once the top management has made a commitment to pursue sustainability.

(iii) *Sustainable Measurement* : With a new set of assumptions, a new vision, and a set of shared values, managers will need to modify some of the numbers they use daily, to eliminate others, and to introduce some new numbers for defining and gauging organisational performance.

(iv) *Work Flexibility* : New work arrangements must not only provide greater flexibility and freedom for management, but also take care of changing attitudes and expectations of the work-force which comprises a variety of skilled specialists.More work should be subcontracted and to the extent possible, in-house 'core' activities of the company should be carried out by employees working from home rather than from a company office or plant.

(v) *Orchestral Style* : A participative style of management should be adopted to replace the extant paternalistic styles with the kind of leadership displayed by the conductor of an orchestra that inspires full participation.

(vi) *Just Ownership* : Sustainability stands on the principles of natural justice and equity.This must be reflected also in the principles governing business activities.Accordingly, some fundamental changes in the dominant company law are required with respect to joint stock limited liability, with a view to promoting alternative forms of ownership.Changes in corporate legislations should also be directed towards introducing public benefit accountability and linkages between ownership rights and obligations.

(vii) *Enduring Quality* : The value changes that sustainability enfolds will profoundly affect the meaning of quality.The imperative of sustainability will add maximisation of durability, repairability and energy efficiency to health and safety in the new codes of practice and new standards for managers and other professionals.

(viii) *Convivial Rules* : Existing rules of business must be carefully reviewed against and attuned to the new set of assumptions for sustainable development.

(ix) *Systemic Technology* : Two fundamental changes in technological development will have to be made to favour sustainability.Firstly, a systems approach to development must substitute the hitherto 'blinkered approach'.Instead of maximising the performance of one element of the system, it is necessary to optimise the whole

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system.Secondly, a more widespread use of renewable materials and energy sources must be made, and technologies of recycling and reconditioning should be upgraded.

Each of these areas involves a separate task for a company, and taken together, a new transformation strategy is in the offing.Of course, there are unprecedented constraints to be encountered in the process but they are more than offset by the enormity of new opportunities to be availed of by imaginative organisations in a period of creativity.Divergent thinking is asked for since there cannot be any generalized solution(s).

With 'quality of life' as the primary justification for any corporate activity with a sustainability orientation, another major task at hand is to write environmental ethics into corporate policy.Such an ethic should highlight the humanistic and naturalistic dimensions contiguously, to afford an enriched moral calculus reconciling human and natural systems, and economic and ecological ones (Rolston, 1988, p. 302). The humanistic ethic would assert that business is wrong if it asserts self-interest at the cost of the whole public welfare.The naturalistic ethic would go one step further to pronounce that the whole human business is wrong, if likewise, it asserts its corporate self-interest at the expense of the biosystemic whole, disregarding other stakeholders. [*Vide Note # 10*]

The emergence of a new environmental ethic and of strategic thrust areas in the corporate arena means that companies would increasingly be in sight of new challenges and aspirations in respect of the following :

(a) Raw materials — minimum use of non-renewables and maximum use of renewable and recycled materials;
(b) Facilities and process —low energy consumption, minimum emissions and discharges, minimum waste and maximum safety;
(c) Product — maximum durability, minimum packaging, minimum adverse environmental impact and maximum benefit to the environment;
(d) After-use recyclability and reusability.

The achievement of these ideals is by no means facile, and requires, in addition to a dedicated work-force and a commitment to the environment, a versatile environmental information system (EIS) that facilitates planning and controlling of operations.The environmental reporting (popularly referred to as 'green reporting') system constitutes an indispensable part of the EIS.

Green Reporting : A Sustainable Measurement Imperative

As outlined in the previous section, sustainable measurement is one of the pre-conditions of 'greening' the corporate world.This entails a critical review of existing numerical systems that managers use (in planning motivating, communicating, monitoring and performance evaluation) and their replacement, where necessary, by alternatives that reflect the necessary conditions for sustainability.This is because if numbers fail to convey relevant meaning, they are valueless for all practical purposes and, at worst, can be

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misleading.Admittedly, they are indispensable for effective action since they import usefulness, clarity and weight to qualitative information, provided the qualitative message itself is intelligible.

The need for sustainable measurement would clearly have considerable repercussions on the accounting function, whether accounting is seen as a neutral facilitator of social and economic activities (the neutralist view-point) or as an active agent for effecting social and economic change (the radical-activist view-point).Either way, decision-usefulness *is* at the heart of accounting information.In this context, Mike Lickiss (1991, p.6), President of the Institute of Chartered Accountants in England and Wales states unequivocally, that : 'In responding to the challenges posed by the environment, which is our natural wealth, all aspects of accountancy including financial reporting, auditing, management acounting and taxation will have to change.In doing so, there will be an impact on all members of the Institute whether in public practice or in commerce and industry and whether working at home or abroad'. The growing volume of articles on green accounting and reporting issues in professional and academic journals, the active involvement of major professional accounting bodies by way of funding research and establishing working parties, and the painstaking efforts of leading international accounting firms to secure an edge in the environmental audit market is evidence enough that accountants, too, *have* jumped on the 'green' bandwagon.

It is worthwhile to mention here that a consideration of possible repercussions on the accounting function and of the heightened alacrity of accountants towards 'green' issues, involves the adoption of a technocentrist approach to environmental responsibility (Owen, 1992, pp. 18-23). In other words, there is a pervasive belief that a process of objective analysis based on the provision of 'better' information is the key to solving our environmental and social problems and that such problems can be accomodated within the prevalent socio-political system using a free-market economy approach with gradual liberal reforms.Accounting's forte is its ability to make visible and discipline performance (Hopwood, 1984, pp. 178-9) and the fact that conventional accounting techniques ignore social and environmental concerns implies a need to reform accounting theory and practice so that more divergent aspects of performance are captured.This is the technocentrist reformist perspective.

From the ecocentrist, 'deep green', radical standpoint, accounting may be considered a discipline obsessed with the necessity for economic growth typifying the economic and social system in vogue.

Gorz (1989, p. 112), in an incisive analysis, points out that 'Accountancy is familiar with the categories of 'more' and of 'less' but doesn't know that of 'enough'. This implicates accounting's ineptitude in coping with the notions of 'sufficiency' and 'sustainability' and its consequent irrelevance to environmental issues.The concern of ecocentrists is not with a mere critique of rules of economics and conventional accounting but with the limits within which economic rationality and associated accounting techniques should operate.At an extreme, this might suggest that (i) some or all of the funcions that

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accounting presently performs will be largely redundant (Burchell et al, 1980, pp. 5-27); (ii) the formal and antagonistic accountability that accounting currently serves would be eschewed (Arrington, 1990, p.2); (iii) the conception and role of money in a green world might be very different (Dauncey, 1988); (iv) formal accounting might be unnecessary as the informal accountability of deeper social relationships and associated transparency took over (Gray, 1990); and (v) accountants as a separate tribe may be totally redundant in such a world (Gambling, 1985). The radical viewpoint envisions the creation of new institutions for a different non-market economy (Ryle, 1988) but the prescription and elaboration of new accounting systems operable in such an economy is not forthcoming in the critique. 'Thus anticipation of "truly green' accounting is unknowable' (Gray, 1992, p. 409) in this perspective.

Ethically speaking, we do acknowledge the superiority and immense potentialities of the radical vision.However, on grounds of pragmatism and urgency of the environmental malaise, the reformist approach has the distinct advantage of immediate practicality in framing actual strategies for change.Furthermore, only a reformist perspective permits us to explore the profound implications that the emerging green agenda might have for the accountant and the accounting function in terms of internal management information systems and external reporting practice (Owen, 1993, p. 59).

What Inhibits an Accounting Response to Environmentalism ?

The potential implications for the accounting function that ensue from the adoption of a reformist stance, call for innovations in accounting theory and practice which is no mean task and which indeed poses fundamental problems to the accountant who is being asked to transcend the confines of quantitative bottom-line financial reporting.

The foremost impediment in the way of a real contribution to the green movement is the acountants' long-standing predilection with objectively verifiable and exclusively financially-based measurement techniques.Whilst financial figures can be imputed into clean-up and recycling costs, it is not possible to price many elements of 'critical' natural capital (e.g., air, clean water, the ozone layer etc.) which are conveniently ignored by the accountant as 'free goods'.A fundamental re-examination of the marginalist and neo-classical economic underpinnings of the accounting discipline which allows accounting to operate only when prices are generated by transfer of property rights in the market place, is inevitable (Owen, 1993, p. 71).

Secondly, three other aspects of the traditional accounting framework are in need of basic change to enable a greening of accounting, namely, (a) the emphasis on single time period, (b) historic performance measurement, and (c) the concentration on the economic entity as the focus of reporting.Ecological issues are long-term in nature, affecting future generations, requiring the accounting for common-use property and stakeholder stewardship, whereas environmental impacts are considered 'externalities' from an entity's point of view.The accountant's perception is limited by reference

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to events that directly impinge upon the particular economic entity being dealt with and to that which is explicable in financial terms.Ecology, on the contrary is holistic.Therefore, some recognition of the significance of systems theory is essential for adding a green dimension to accounting (Mookerjee, 1992, pp. 58-9) and as a mode of thinking, it must be centrally placed within the accounting standard-setting process.

Thirdly, each of the issues that green reporting purports to cover—use of scarce resources, pollution, social impact, global warming, and suchlike —must be reported separately using a reporting mechanism that suits each of them.The different impacts cannot be summed up algebraically. Mathematically speaking, environmental reports are multivariate while financial reports are univariate (Ing, 1992, p. 270).

Fourthly, the adding up of environmental impacts is rendered more arduous because of their contradictory nature — the operation in question (e.g., removal of a pollutant from a factory's effluents) may improve one measure of environmental friendliness at the expense of another (e.g., the use of a chemical for treating the pollutant, whose production has carcinogenic effects) (Ing, 1992, p. 271).

Fifthly, environmental obligations take a long time to settle, and involve a high degree of interdependence and uncertainty which makes estimation and valuation extremely difficult.

Sixthly, accounting for traditional obligations is based largely on an explicit contract between known transacting parties and terms of the contract i.e., the rights, benefits and obligations of each party are well-defined.Environmental obligations, however, involve implicit social contracts that are yet to be firmly established by legal precedent with invisible contracting parties (Rubenstein, 1992, p. 504).

Finally, financial reporting has traditionally been the preserve of accountants, and the last one hundred years of frenetic commercial activity has prompted large-scale refinements of the contents of financial reports.Also, users of these reports are somewhat conversant with the conventions and process used in their preparation and presentation.Environmental reporting, by contrast, is still in its infancy and special difficulties are showing up in collecting, presenting and interpreting information because we have not done such an exercise in the past.Moreover, it is a quickly changing field, in that, basic information to be reported changes and so do expectations of the audience, as environmental issues become more researched and well-documented.

The perplexities for the accounting function cited above are not intended to demonstrate that green reporting should be nipped in the bud. Rather, they bring home its importance for the whole community and for the commercial well-being of the organisation to the extent that organisational green reporting systems are now imperative and indispensable.

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Maintenance of Capital under Sustainability Accounting

The accountant's attempt at operationalizing sustainability will have to be directed primarily towards an extension and re-interpretation of traditional, Hicksian income-based notions of capital maintenance.Environmental economists argue that a level of sustainable activity is that which maintains the planet's capital.They contend that any (human) activity that uses finite raw materials, clean air and water, fossil fuel energy sources and timber, without their replacement, and which removes habitat and produces waste entailing physical disposal, leaves the planet with a depleted capital [*Vide Note # 11*]. They propose that under such circumstances, the planet will have to provide for the maintenance of three types of capital prior to reckoning any residual as (sustainable) income (Gray, 1992, p. 417). These are :

i) *'Critical' natural capital* refers to that part of the biosphere that must be immutable e.g., the ozone layer, tropical rain forests, wetlands and critical habitats.Biologists opine that expending this capital eventuates in the biggest loss.

ii) *Sustainable or substitutable (or 'other') natural capital* includes that part of the biosphere which is renewable or which can be substituted for its use-value e.g., water and air, timber, major parts of land, population of non-extinct creatures, agricultural products, mineral fuels and mineral building materials [*Vide Note # 12*].

iii) *Man-made capital* is represented by machinery, technology, know-how and materials.These are what industrial and commercial activities excessively concentrate upon in the so-called over-developed Western democracies.Besides, there are also non-priced aspects of man-made capital stock which, too, are being treated unsustainably, such as infrastructure, built environment, human freedom, self-actualization, justice, cultural diversity, ethical and aesthetic values (otherwise referred to as 'moral' capital). Dauncey (1988) skeptically questions whether man-made capital measured by other than traditional methods of national income computation has actually increased even in the West.

Regarding the level at which capital maintenance for sustainability should be sought, there is some disagreement whether it should be planetary, national or organisational. Subscribing to Drucker's (1989, pp. 109-33) view that all global problems have local implications and offer scope for local action, it would be proper to try and translate these concepts of capital to the level of the organisation and to search for ways to introduce them to our accounting.Organisational sustainability should then be used as a complement to and not as a substitute of sustainability at other levels (Gray, 1992, p. 418). In an organisational setting, accounting for sustainability would have two major functions to perform — first, to inform organizational decision-makers of the extent to which the organisation was depleting the planet's capital so that attempts may be made to 'internalise' previously treated 'externalities',and second, to inform society about the way its capital was being employed and whether it was being maintained or not.

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integrate an energy accounting system with the conventional accounting system because of the fact that energy can be expressed in universal measures (e.g. joules, ergs). A re-examination of the system should be encouraged, especially after the introduction of carbon taxes. The system should aim, inter alia, at : (i) saving energy as a global and national goal, (ii) increasing productivity by the utilisation of energy saved, (iii) reducing capital and revenue expenditure for expansion projects, and (iv) enabling growth and profitability with a concern for posterity (Choudhuri, 1994, p. 31).

(3) *Environmental Impact Assessment (EIA)* attempts at evaluating the total possible impact of a new project so as to be able to predict whether the organisation is likely to violate environmental planning regulations or alternatively, whether the project is perceived as being environmentally acceptable.Smith (1993, p.95) defines EIA as a process of environmental planning that provides a basis for resource management to achieve sustainability.Thus EIA serves to bridge the gap between the science of environmental analysis and the politics of resource management.The main objective of an EIA is to identify and quantify effects of primary, secondary and tertiary impacts on all aspects of the environment including flora, fauna and ecosystems (Spellerberg, 1992, p. 217). An Ecological Impact System may be used together with an EIA to disclose impacts on the ecology and ecosystems only.

(4) *Environmental Budgets* can assist in setting green targets for activity centres along with other levels of budget allocation, and act as a part of the performance appraisal of the organisation (Gray, 1992, p. 411). Inter-divisional transfers can be dealt with by a system of financial charges or the budgetary system can be maintained in physical units and environmental interdependencies recorded accordingly (Owen 1992, p.9).

(5) *Environmental Hurdle Rates* inject environmental criteria into investment decisions.The traditional approach to discounting has to be questioned in the light of some of its adverse effects e.g., discriminating against a fair weightage to environmental factors, shifting of the burden of costs to future generations and precluding future generations from inheriting created natural wealth.Pearce et al (1989, p.137) aptly refer to these lapses as the 'tyranny of discounting'.The use of lower discount rates for particular environmental benefits would help to attach a significant present value to them, even if they were to occur many years later in the future (Owen, 1992, p.9). As an alternative, it might be necessary to build qualitative criteria into investment hurdle rates.The concepts of BPEO (i.e. 'Best practicable environment option') and BATNEEC (i.e., 'Best available technology not entailing excessive cost') put forward in the 12th Report of the Commission (1988) on Environmental Pollution and subsequently espoused by the

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Environmental Protection Act of 1990 in the U.K., indicate that organisations will increasingly need to provide both qualitative and quantitative analysis of a chosen project's environmental impact and be able to justify 'hurdle' rates used.BPEO 'provides the most benefit or least damage to the environment as a whole, at an acceptable cost, in the long term'.BATNEEC puts the onus on the polluter to use the best technical solution to reduce pollution.The principle is that every time better and affordable technology becomes available, emission standards will be tightened.Both concepts articulate the criteria to be applied to organisational assessment by regulatory authorities in the U.K. Failure on the part of the organisation to choose BPEO and / or BATNEEC could lead to retrospectively charged reparation damages (Gray and Gray, 1990, p-34).

(6) *Environmental Asset Maintenance* activities of the accounting information system deal with classifying assets owned and controlled by the organisation into the three groups of 'critical' natural capital, 'other' natural capital and man-made capital, to keep track of transfers between categories, and to indicate the extent to which each category of capital is being maintained.

(7) *Environmental Performance Indicators* need to be integrated into the environmental policy at an early stage in the process of environmental management of a company for measuring current environmental performance and reporting to internal and external stakeholders.The measurement of environmental performance helps to further the improvement of environmental performance, and to extend corporate environmental objectives.

A wide range of environmental performance areas will have to be covered alongside other aspects of business performance.There are no absolute rules regarding what should be measured, but the performance targets should, in principle, be realistic, attainable and challenging.Performance measures, should certainly be consistent with the organisation's environmental management system, overall business policy and objectives.Furthermore, they should effectively inform the appropriate target groups. Performance measures should not only be confined to quantititative (financial or non-financial) measures but should also involve qualitative measures based on subjective judgment.Measures should be developed to assess environmental impacts at the corporate level through the measurement of waste and effluent discharge, and energy usage.Apart from these, contributor measures should be designed which highlight appropriate use of technology and materials, product and supplier performance and effectiveness of environmental management systems.External relations measures will also have to be adopted to include assessment of risk (*Vide Note # 13*).

B) *External Reporting System*

This system is designed to convey information concerning environmen-

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tal and social impact of corporate activities to a wider audience.Admittedly, the business community, as a rule is reluctant to make detailed information on corporate environmental impact publicly available. Jenkins (1990) supports some degree of public disclosure as a mechanism of corporate accountability, particularly the publication of a statement of environmental policy within the directors' report.Investors, to whom the company is legally accountable, are however, increasingly calling for even more detailed information than that which vague policy statements provide (Owen, 1993, p. 64). Moreover, this desire to be kept fully informed is not confined to the emergent 'ethical' investor but is also being expressed by more traditional, solely profit-seeking investors.Arguably, corporate accountability for environmental and social impacts is not restricted to the investor community.It encompasses 'the race, the rest of life and future generations' who have significant rights to information about those things which may well affect their continued existence and the form and quality of that existence' (Gray, 1990, p. 104).

External reporting must be geared towards (i) domestic (i.e., national) legislative developments, (ii) supra-national influence (e.g., issues of environmental disclosure raised by the United Nations Inter-governmental Working Group of Experts on International Standards of Accounting and Reporting), (iii) influential user and pressure groups, and (iv) corporate self-interest (Owen, 1992, pp. 12-15).

As a possible development in external reporting practice, the broad developments made in social reporting of issues in the public interest during the 1970s (Ramanathan, 1976, pp. 516-28) can be extended to provide a more in-depth coverage of accountability.

The Institute of Chartered Accountants in England and Wales (ICAEW) research group recommends a formal reporting of the following items either within the company's annual report or in a separate publication : (a) the organisation's environmental policy; (b) the identity of the director with overall responsibility for environmental issues; (c) the environmental objectives which should be expressed in a way that enables performance measurements; (d) information on past and present actions, including their costs; (e) the main environmental impacts of the organisation and their measurement, where possible; (f) the effects of compliance with regulations and any industry guidelines; (g) the significant environmental risks not required to be disclosed as contingent liabilities; (h) the key features of any external audit report on the organisation's environmental record (Beaumont *et al* 1993, p. 85).

The inclusion of the undermentioned information would further enhance the ability of the report user to assess corporate environmental impact : (i) consumption of energy and any measures being taken to reduce it; (ii) transport-information on size and make-up of car and goods vehicles fleet, and measures being taken to reduce usage of road network; (iii) steps being taken to replace usage of hazardous substances, coming within the purview of international agreements or domestic restrictions, with more environment friendly alternatives; (iv) information on licenses held e.g., for animal testing; (v) an environmental report indicating the organisation's broader impact on the environ-

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ment and valuations of natural and man-made assets, transfers between these categories, and data on asset maintenance; (vi) a three-tiered eco-balance statement' (Hopfenbeck, 1993, pp. 275-6) consisting of an input-output statement, a process balance statement and a product balance statement, which helps to make environmental criteria transparent within and outside the company.

It will be appreciated that the extent to which an organisation's green reporting system is developed on the lines specified above, will determine its corporate image in a world of growing environmental consciousness.Four possible positions may be adopted (Sadgrove, 1992, p. 203) : (i) *The Laggard* does nothing and has a grey image. It does not spend on environmental protection and environmental reporting and may be subject to punitive measures with the enforcement of new legislation. (ii) *The Punished* company fails to adapt to changing circumstances and is consequently punished by customers, other pressure groups or by legislators.Substantial cost follows due to required retro-fitting but the company retains its grey image. (iii) *The Conformer* aims to stay within the law, spending as little as possible with low-cost solutions. Most companies like to adopt this strategy of having a green image for minimum outlay.*The Leader* is concerned about its ethical image, takes a high-cost route for achieving superiority in technology and innovation, gains a high profile and may become a standard-setter for other companies because of its stringent self-regulation.

For the immediate future, the gravity of global ecological problems dictates that accountants should help re-create the organization's image at least according to the third option and preferably in tune with the fourth. For a longer time horizon we should strive towards actuating an eco-centric environmentalism that is not based exclusively on utilitarianism with a cost-benefit/expected utility calculus.The additional ethical demands may be partly met by modifying this calculus so as to — (a) bias decisions against *irreversible* choices, (b) bias decisions in favour of offering special protection to those who are especially *vulnerable* to our actions and choices; (c) bias decisions in favour of *sustainable* rather than one-off benefits; and (d) bias decisions aginst *causing harm* as distinct from merely forgoing benefits (Goodin, 1983, p. 16).

Conclusions : Towards the Age of Light

Commencing with a defense of an ecological world-view, the present paper has attempted to underscore the extreme seriousness and urgency of our ecological malaise which may be attributed, in large measure, to the myopia of the *homo economicus*.The need for an impending redressal of human (economic) activities has provoked us to explore and zero-in on a possible integration of the seemingly unrelated disciplines of environmental ethics and accounting, within a sustainability-oriented, green reporting framework.In this journey, it must be confessed, we have touched only the tip of the ice-berg. There are more pressing tasks ahead.From a humanistic perspective, children should be given more opportunity to participate in environmental and societal

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policy making on issues such as education, ecological balance, transport and urban planning, and water quality.In fact, the health and well-being of children should be made a key economic indicator of sustainable development (Environmental Health News, April 2, 1993) since their overall well-being is essential to the future of humanity. 'In children alive today, we have among us the first representatives of the future generations which underpin the notion of sustainable development..... If we cannot build the needs of millions of children into our political, economic and social systems, we have little chance of meeting our own and our descendants' needs for a sustaining and sustainable environment' (Timberlake and Thomas, 1990 p. 27). Secondly, the need for non-reductionist knowledge systems as a pre-requisite for the adoption of an ecological approach to economic and social decision making, prompts the inclusion of women in decision processes of sustenance economies because they 'have been experts in their own right of a holistic and ecological 'knowledge of nature's processes' (Shiva, 1989, p. 24). Thirdly, in order to gradually adopt an ecological perspective of our problems, a new breed of 'environmental integrators' — specialists with breadth rather than generalists with no speciality — should be developed in the context of educating environmental professionals capable of environmental management (Thomas, 1992, pp. 261-62). This would improve cooperation between cognate disciplines, combine expertise of different disciplines, encourage inter-disciplinary environmental research, enable mutual understanding and exchange of information among professional groups, and combine efforts towards the understanding and solution of interdisciplinary problems.Students must be taught to think creatively and integratively and refinement of one's 'supra-rational' (i.e. going beyond the rational to create something new) powers [*Vide Note # 14*] should be encouraged as a basic goal of education.

Finally, as we mature from the post-industrial Information Age into the Age of Light (both, with the advent of lightwave technologies and the flowering of our consciousness), we should try to imbibe, more and more, a global vision that is implanted in a universal Knowledge by Identity.This is the eternal message of the Upanishads which Mascaro (1965, p. 43) describes as 'the Himalayas of the Soul' :

> "That the invisible, that the unseizable, without connections, without hue, without eye or ear, that which is without hands or feet, eternal pervading, which is in all things and impalpable, that which is Imperishable, that which is the womb of creatures sages behold everywhere" (Sri Aurobindo, 1953, p. 97).

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Notes

#1. The following is a comparative analysis of the mechanistic and ecological world-views after Sterling (1992, p. 82) :

Mechanistic/Cartesian	Ecological/Holistic
Descriptors	
Mechanistic, reductionist, technocentric	Organic, holistic, participative, ecocentric
Primary Characteristics	
* Fact and value unrelated	* Fact and value closely related
* Ethics and ordinary life separated	* Ethics and ordinary life integrated
* Subject and object separate	* Subject and object interactive
* People and nature separate—relation is one of domination	* People and nature inseparable—relation is one of systemic synergy
* Knowledge divisible, value-free, empirical, controlling	* Knowledge indivisible, value-laden both empirical and intuitive, empathic
* Linear concepts of time and causation	* Cyclical concepts of time and causation
* Nature understood as being made up of discrete parts; the whole is no more than the sum of its parts.	* Nature understood as being made up of interrelated wholes which are greater than the sum of their parts.
* The power of a unit equated with well-being (money, influence, resources)	* The quality of interrelationships between systems equated with well-being
* Emphasis on the quantitative	* Concern with the qualitative
* Emphasis on material reality	* Concern with physical and metaphysical reality
* Analysis is the key to understanding	* Emphasis on synthesis
* Instrumental values recognised	* Instrumental and intrinsic values integrated through systemic values
* Few or no technical or ecological limits	* Ecological limits determine technical limits
Secondary Characteristics	
* Centralization of power	* Decentralization of power
* Specialization	* Multi-dimensional approach
* Emphasis on competition	* Emphasis on cooperation
* Increasing homogeneity and disintegration	* Increasing diversity and integration
* Undifferentiated econonuc growth	* Steady state economy or qualitative growth

#2 Swami Vivekananda (1993, p. 494) distinguishes between two sets of truth : (i) *sensuous* truth which is 'cognisable by the five ordinary senses of man and by reasoning based thereon'. Knowledge acquired

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by this means is called science; and (ii) *supersensuous* truth which is cognisable by the subtle, supersensuous power of Yoga and which has no beginning or end.Knowledge thus acquired is called the Vedas.The authority of the Vedas extends to all ages, climes and persons.

Sri Aurobindo (1993, pp. 886-7; p. 945) makes a clear distinction between *truth of thought and intellect ,and truth of the spirit*.The first is born of 'a perception, a cognitive seizing of the object' and a 'consequent conceptual formation of it'. It is 'arrived at by an outward inquiry through the senses or by scrutiny or research that founds itself on outsides and surfaces or by speculation based on uncertain data of an indirect means of knowledge'.The 'limited truth of the physical field' partakes of a 'hard, logical and intellectual notion of truth as a single idea or system of ideas' which is held to defeat all other ideas and systems, and accordingly, to be recognized and accepted by all.Such a truth can at best be ' a representative image of the Truth'. Truth of the spirit 'comes by a direct vision or contact of the consciousness with the soul and body of the Truth itself or through a knowledge by identity, by the self that becomes one with the self of things and with their truth of power and truth of essence'. It is 'not a mathematical theorem or logical formula' but a 'truth of the Infinite, one in an infinite diversity, and it can assume an infinite variety of aspects and formations'. 'The fundamental truth of spiritual experience is one, its consciousness is one, everywhere it follows the same general lines and tendencies of awakening and growth into spiritual being'.

3. S. Trudgill (1990, pp 3-5) indicates that there can be a great diversity of barriers to finding and implementing solutions to environmental problems.These barriers can interact with each other and will change with each problem.There are six major groups of barriers, collectively referred to as the AKTESP barriers: *agreement* (about existence and significance of problem, scope of solution (s) and means of achieving them), *knowledge, technological ,economic, social* and *political.*

4. *Arne Naess* is a Norwegian philosopher and chair of Greenpeace, Norway.He coined the phrase '*Deep Ecology*' in the early 1970s and distinguished it from 'shallow ecology' which he identifies as the environmentalism that aims at 'the health and affluence of people in the developed countries'. In Deep Ecology, a perspective is sought that is eco-centric (i.e. not human-centred). It defends the view that 'there is an intrinsic value in every form of life'. 'To the ecological field - worker, *the equal right to live and blossom* is an intuitively clear and obvious value axiom.Its restriction to humans is an anthropocentrism with detrimental effects on the life quality of humans themselves' (Naess, 1973). Following are some of the basic 'principles' of the 'Deep Ecology Movement' (Naess, 1990 pp 134-7) : (i) The well-being and flourishing of human and non-human life on earth have intrinsic

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value and inherent value, which are independent of the usefulness of the non-human world for human purposes; (ii) Richness and diversity of life-forms contribute to a realisation of these values and are also values in themselves; (iii) Humans have no right to reduce this richness and diversity except to satisfy vital needs; (iv) The flourishing of human life and culture is compatible with a substantial decrease of the human population; (v) Present human interference with the non-human world is excessive and the situation is rapidly worsening; (vi) Policies, therefore, must be changed which will impact our economic, technological and ideological structures; (vii) The change in our attitudes will bring an appreciation of the quality of life in place of an adherence to increasingly higher standards of living; (viii) Those who subscribe to the foregoing points have an obligation, directly or indirectly, to try to implement necessary changes.

James Lovelock is an eminent, independent British scientist who has cooperated with NASA in their space programme. He originated the '*Gaia Hypothesis*' in 1979 which may be considered as one of the 'epochal insights of this century'. Lovelock's message is that the Earth is 'a real live planet on which the living things, the air, oceans and rocks, all combine in one as Gaia (Lovelock, 1988, p. 19). 'Gaia is the name Greeks used for the Earth Goddess' (Lovelock 1988, p. 3). Gaia as a total planetary being, has continuity with the past back to the origins of life and extends into the future as long as life persists.She has properties that are not necessarily discernible by just knowing individual species or populations of organisms living together.The biota and biosphere form part but not all of Gaia.

The Gaia Hypothesis states that 'the temperature,oxidation state, acidity and certain aspects of the rocks and waters are at any time kept constant, and that this homeostasis is maintained by active feedback processes operated automatically and unconsciously by the biota.Solar energy sustains comfortable conditions for life.The conditions are only constant in the short term and evolve in synchrony with the changing needs of the biota as it evolves (Lovelock, 1988, p. 20). In the event of a global disaster, these mechanisms would ensure that life would continue on Earth, though not necessarily in its present forms and , in particular, *not necessarily with the continuance of the human species* (emphasis added) (Lovelock, 1979). Gaia is no 'doting mother' or 'delicate damsel in danger'. She is 'stern and tough, always keeping the world warm and comfortable for those who obey the rules, but ruthless in her destruction of those who transgress.Her unconscious goal is a planet fit for life.If humans stand in the way of this, we shall be eliminated with as little pity as would be shown by the micro-brain of an intercontinental ballistic nuclear missile in full flight to its target' (Lovelock, 1988, p. 212).

5. *E.F. Schumacher* was a German economist who spent most of his working life in Britain.His economics included people as well as the

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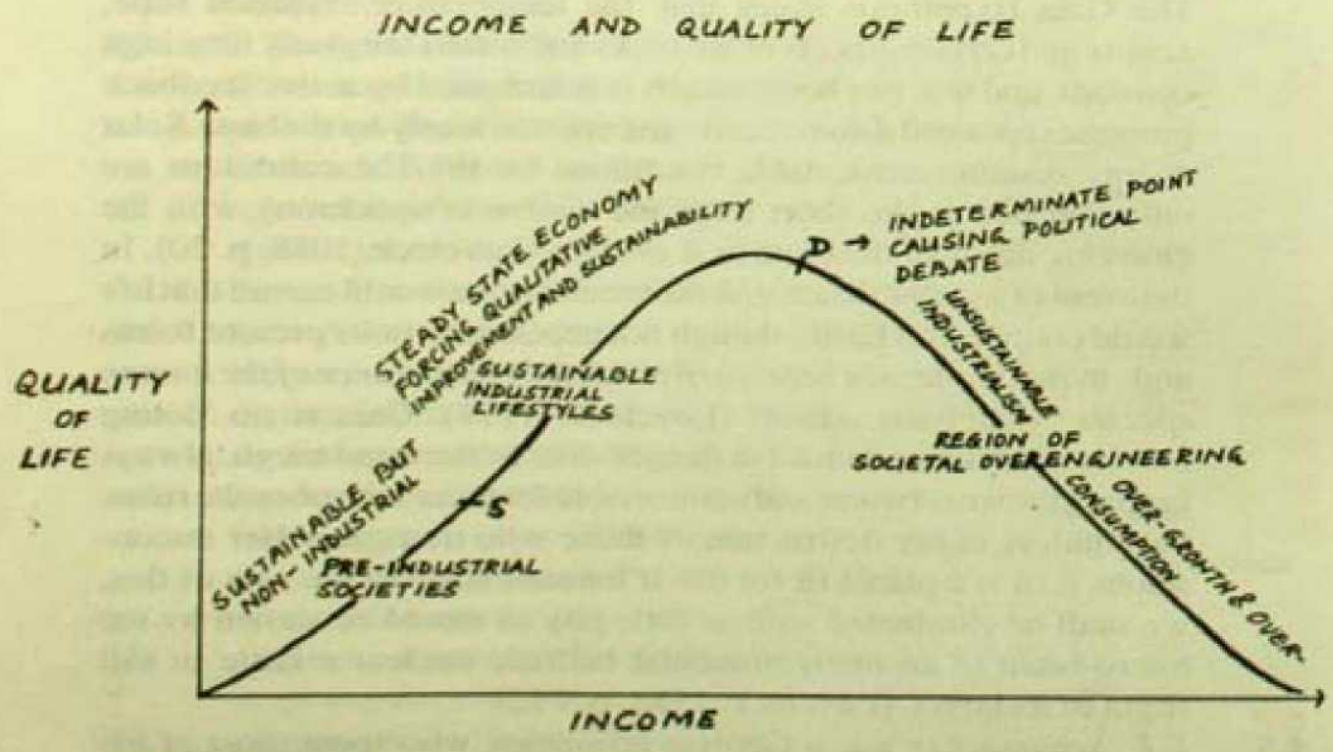
planet.His book, "*Small is Beautiful*" published in 1973 has become the 'bible of the Green Movement'. He believed that economic well-being is not sufficient unless it is accompanied by ecological and spiritual well-being.According to Schumacher, the true challenges of living in politics, economics, education or family relationships lay in reconciling opposites which demanded not only the employment of reasoning powers but the commitment of the whole personality.Superficial solutions never endure because they invariably neglect one of the two opposites and so lose the full quality of life.Schumacher sought to link western and eastern philosophies with business and economic principles.

According to Schumacher, the new economics has three components.The first is our relationship to the soil : our food and clothes, our homes and our sustenance come from the soil, the earth.The second is an awareness of our *soul* : the bedrock of our individuality — our intellect, wisdom, emotions, happiness, sense of fulfilment and realisation of God.The third is our involvement with *society* : the human world and community which gives us our culture, education, philosophy, religion, tradition and history.Replenishment of the soil, of the soul and of society must be the basis for building sustainable economics.

6. Prof. M. Thring (Carley and Christie, 1992, p. 46) calls this situation 'societal over-engineering' and explains it by means of a simple graph which traces the relationship between change in income and change in quality of life.This is shown below :



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7. Sustainability is a matter of conserving the overall capital stock (i.e. $K_m + K_h + K_n$) including man-made capital (K_m), stock of knowledge and skills (or human capital) (K_h), and stock of natural capital (K_n). Hirsch (1976) adds a further component of moral capital (K_c) and affirms that depletion of moral capital (K_c) may be more costly than the depletion of other components of the total capital stock. The market system supports self-interest which corrodes the moral context of community. It does not accumulate moral capital; it depletes it. Consequently, the market depends on the wide system (or community) to regenerate K_c just as much as it depends on the ecosystem for K_n.

8. Ecocentrists and technocentrists are unanimous in recommending the adaptation of human activities to the *carrying capacity* of the planet for the sake of sustainable development. Carrying capacity may be defined as the maximum rate of resource consumption and waste that can be sustained indefinitely in a region without impairing ecological productivity and integrity. Carrying capacity planning is an example of the commingling of ecocentric and tehnocentric modes of environmentalism with a very significant impact on modern environmental policy-making.

9. Milbraith (1989) uses the term *'out front'* to mean replacing left and right thinking with ecological thinking based on the value of sustainability.

10. Rolston (1988, pp. 294-313) provides some useful maxims of humanistic and naturalistic ethic that warrant adoption by business organisations. They are enumerated below :

(A) Humanistic ethic

1. Assess costs suffered by persons not party to your business transactions.
2. Do not assume that what is good for the company is good for the country.
3. Do not keep company secrets that may vitally affect those from whom the secrets are kept.
4. Do not disclaim responsibility in inherited problems.
5. Optimise non-consumptive goods.
6. Optimise recycling.
7. The more vital a non-renewable resource, the more worthwhile the use to which it should be put.
8. Accept no-growth sectors of the economy.

(B) Naturalistic ethic

1. Respect an ecosystem as a proven efficient economy.
2. The rarer an environment, the lighter it ought to be treated.
3. The more beautiful an environment, the more lightly it ought to be treated.
4. The more fragile an environment, the more lightly it ought to be treated.

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5. Respect life, especially that of sentient beings.
6. Respect life, the species more than the individual.
7. Think of nature as a community first and then as a commodity.
8. Love your neighbourhood as you love yourself.

11. The term 'depletion' is anthropocentric and conservative according to Gray (1992, p. 417). From an ecological view point, nothing is lost; it is merely transformed. In this framework, for instance in Gaianism, we would focus on entropy and the transformation of elements in the biosphere, because there would be no actual diminution of the biosphere's ability to sustain human and non-human life.

12. Gray (1992, p. 420) classifies 'other natural capital' into three groups. These are : (i) *Primary resource inputs* where the sustainable cost would only have to be calculated or estimated at the point of extraction (e.g., minerals, fisheries, timber etc.), subsequent prices passing this on to secondary users; (ii) *"Input' of waste-sink capacity* where the sustainable cost is the total of costs necessary to return the sink (e.g., air, sea, water, land etc. used for emissions and waste disposal) to its original state; and (iii) *Stewardship* assets where the sustainable cost is that of re-habitating and re-landscaping habitats and land after use, to return them to their original state or alternatives provided.

13. A checklist of performance indicators is provided below :

(a) *Contributor Measures*	
Performance area	*Examples of measure*
(i) Technology	Level of investment in new technology; substitution of clean technology; effectiveness of new systems.
(ii) Materials	Utilisation of process materials; use of renewable resources.
(iii) Products	Implementation of design changes; level of investment to meet higher environmental standards; level of rejects and direct waste.
(iv) Suppliers	Achievement of supplier survey; implementation of supplier awareness initiatives; new procurement procedures.
(v) Management systems	Level of implementation of system; effectiveness of new procedures; performance against audit; level of organisational commitment and participation; existence of training programmes.
(b) *External Relations Measures*	
(i) Impact measures	Numbers of prosecutions; levels of complaints; positive and negative exposure resulting from pressure

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	groups; number of complimentary/ adverse media reports;increase/ decrease in sales related to environmental impact.
(ii) Positive measures	Level of public disclosure; availability of environmental impact information; level of consultation with outside agencies; public awareness programmes; level of support for external environmental programmes.
(iii) Risk measures	Measures of the probability of accidents; existence and understanding of emergency plan; speed and effectiveness of emergency plan; communication with emergency services; public disclosure of likely impact of accidents.

[Source : Welford and Gouldson, 1993 pp. 70-1]

14. The urge to awaken our 'supra-rational' powers implies that we should turn the faculty of reason not only 'downward and outward' upon our subjective and external life (for understanding it and determining the law and order of its present movement and future potentialities) but also 'upward and inward towards a more luminous functioning' whereby it is 'opened to a Truth above it (and) from which it derives, however imperfectly, an indirect knowledge of the universal principles of our existence and its possibilities'. It provides us, thus, with 'great ideas which are forces and which descend from a plane of truth of being, where knowledge and force are one, and the idea and the power of self-fulfilment in the idea are inseparable'. Only, the forms given to these ideas are intellectual (Sri Aurobindo, 1963, pp. 19-20).

The need to activate our 'supra-rational' faculties arises because 'the reason (which is) active in our waking consciousness is only a mediator between the *subconscient All* that we come from in our evolution upwards, and the *superconscient All* towards which we are impelled by that evolution'. Intuitional knowledge is common between them and is founded upon 'conscious or effective identity between that which knows and that which is known ... But in the subconscient the intuition manifests itself in the action, in effectivity, and the knowledge or conscious identity is either entirely or more or less concealed in the action. In the superconscient, ... Light being the law and principle, the intuition manifests itself in its true nature as knowledge emerging out of conscious identity, and effectivity of action is rather the accompaniment or necessary consequent ... When the self-awareness in the mind applied, both to continent and content, to own-self and other-self, exacts itself into the luminous self-manifest identity, the reason also converts itself into the form of self-

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luminous intuitional knowledge. This is the highest possible state of our knowledge..." (Sri Aurobindo, 1993, pp. 66-67)

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Gray (1992, pp. 418-19) mentions two alternative procedures of maintaining sustainable capital. The first method is imprecise and non-financial in which elements in the three categories of capital lying under the organisation's control are identified. This would enhance the visibility of biosphere interaction e.g., diminutions/improvements in natural capital, both critical and substitutable, as a result of increases in man-made capital as reflected by changes in balance-sheet values.

The alternative method is more tractable within a conventional accounting framework and therefore more practicable and acceptable. It is an attempt to calculate sustainable cost as a shadow of current price-driven accounting information. A parallel accounting system can thus be derived which provides calculations of what it would cost at the end of the accounting period to return the planet and biosphere to the point it was at the beginning of the accounting period. 'Critical' natural capital is irreplaceable and hence its sustainable cost is infinite. The 'economic' decision-maker's choice would therefore be never to use it — a right signal from green accounting.

The numerical output of the shadow accounting system should be capable of being deducted from calculated accounting profit and the monetary amount it represents must be expended in the restoration of the biosphere. The 'sustainable cost' approach, in effect, would help disclose the gross overstatement of conventional, unsustainable, accounting profit, and the benefits that current generations derive at the cost of posterity.

The Mechanics of Green Reporting Systems

The expansion of the horizons of accounting for taking cognizance of green issues primarily aims at inducting social and ecological developments in the structure of operational procedures. As such, a green reporting system would try to convey to internal and external audience i.e., environmental stakeholders, the socio-ecological responsibilities of the corporation by way of relevant information and documentation. The reflection of an extended view of accountability towards environmental stackeholders calls for a redefinition of accounting which may be couched in the following terms, after Rubenstein (1992, p. 506) :

> 'Accounting measures the resources consumed in producing goods and services for trade and for promoting public welfare, as well as the resources preserved, and wealth created for future use, in accordance with conventions mutually agreed on by both the stewards of these resources, and the stakeholders to whom they are accountable'.

A next question that naturally arises is : What information will an accounting system, designed to accomodate environmentalism, generate ? Delimiting our discussions to the microeconomic, organisational level we outline below environmental accounting information systems in two areas of accounting—internal reporting and external reporting.

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A) *Internal Reporting System* : This is developed to capture the cost effects associated with the adoption of environment - friendly business practices (Owen, 1992, p. 7).The components of this system include : (1) environmental audit (2) energy audit and energy audit system, (3) environmental impact assessment, (4)environmental budget, (5) environmental hurdle rates for new investments (6) environmental asset maintenance, and (7) environmental performance indicators. A brief description of these various components ensues.

(1) *Environmental Audit* is an internal audit that is becoming a principal means for managing corporate environmental performance.According to the International Chamber of Commerce (ICC, 1989), environmental audit is ' a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by : (i) facilitating management and control of environmental practices, and (ii) assessing compliance with company policies, which include meeting regulatory requirements'.It is evident that such an audit does not merely involve a simple inspection or assessment based on professional judgment but a methodological examination of a facility and its procedures, including analyses and testing, to verify compliance with legal requirements and internal policies.

Environmental audits are generally comprehensive (as suggested by the ICC) to include a full assessment of the effectiveness of an environmental management system as well as compliance, safety and quality control. Some organisations, however, carry out narrower assessments specific to a particular task, process or issue using a similar methodology.Such partial environmental audits can take the form of compliance audit, process safety audit, occupational health audit, product audit, product quality audit, issues audits, and pre-acquisition audits (Welford and Gouldson, 1993, p. 106-7).

Ideally, the audit has three clear stages — pre-audit, on-site and post-audit.The first stage aims to minimise the time spent at the site and to maximise the audit team's productivity by planning the scope of audit, selecting the audit team, analysis of industry, and work-force involvement.The second stage involves inspection of company records, examination of company policy, examination of lines of management and responsibility, interviews with selected staff, and physical inspection.The final stage includes evaluation of findings, reporting them and peparation of action plan.Thus, environmental audit entails a 'cradle to grave' assessment of the impact of organisational activities on environment.

(2) *Energy Audit and Energy Accounting System* seeks to account for energy expended in providing goods and services, and to pinpoint inefficiencies and resultant saving opportunities (Owen, 1993, p. 62). Gray (1990) observes that in the past, attempts had been made to